

The Canadian Medical Association Journal



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ANTHRAX IN MAN WITH A REPORT OF TWO CASES

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THE occurrence of anthrax is sufficiently rare especially in Canada to warrant us in reporting two cases that were recently admitted to this hospital. Both were Canadians living under the best conditions in a military training camp. Both had recently procured new shaving brushes. Both had cut themselves during shaving and both had malignant pustules at the site of injury. The shaving brushes in both cases were shown to be infected with anthrax.

The early diagnosis of anthrax is not always easy. In the rapid onset and clinical picture of the first few hours it may so resemble cerebro-spinal meningitis as to be diagnosed as such, as in Case 1 of this report. This cannot be wondered at when one reads the history, the sudden onset, the rapid rise in temperature, severe bilateral headache, followed by nausea and vomiting, a petechial rash coming out over the abdomen and thorax, and

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delirium following in a few hours, soon lapsing into coma. It was not until a lumbar puncture was made about six hours after the appearance of these first symptoms and the anthrax bacilli were found in the cerebro-spinal fluid that the diagnosis was cleared up. Death occurred within twenty-four hours of the appearance of the first symptoms. In Case 2 the more gradual onset with death occurring on the third day gives a more typical picture of the usual anthrax infection.

HISTORICAL. In man three forms of disease are found.

1. *Malignant pustule* is the commonest variety and may occur on any exposed part of the body liable to infection through scratches or bruises.

2. *Pulmonary anthrax* following inhalation of the organisms. The site of infection is usually in the larger bronchi though frequently no macroscopic lesion corresponding to a "pustule" can be found. This form is frequent in those who work with wool, hence the name "woolsorters disease".

3. *Intestinal anthrax* is the most uncommon form of the disease and is usually caused by eating infected material. A number of cases of food poisoning—found to have been caused by this organism—have followed the eating of improperly cooked meat.

In *cattle* the disease is known as "splenic fever" or "splenic apoplexy", in Brazil, as "gorotilho". In parts of Europe it has sometimes caused a death rate as high as 5 per cent. to 10 per cent. in sheep and cattle. Pasteur stated that "the disease is spread by worms carrying spores from the buried body to the surface". Although this may occasionally happen, it is altogether more probable that the disease is spread by the blood-stained excreta of the infected animals. Spores readily form in material that is exposed to the air, but in unopened bodies spores do not form and bacilli die in about fifteen days.

Cattle are very susceptible to feeding but less so to inoculation with the bacilli. After infection by feeding, the symptoms are blood-stained diarrhoea, colic, sweating, and convulsions. The animal dies in a few hours, its blood being loaded with the organisms. In Brazil vultures are the chief cause of the spread of gorotilho, as they eat the carcasses of anthrax infected animals and though not infected themselves, disseminate the organisms through their excreta. In *sheep* the disease runs a very rapid course, death occurring quickly after an attack of hæmoglobinuria. *Horses* are less susceptible to feeding with the organism than cattle, but

are more so than the latter to inoculation. Epizooties of the disease among them in Russia are known as "Siberian fever". Pigs are almost immune as are also *carnivora*, *birds*, *cold blooded vertebrales* and *slugs*. However, they can usually be infected by inoculating very large doses of the bacilli and then keeping them for some hours standing in water of an unhealthy temperature. Of *rodents*, mice, rabbits, and guinea pigs are very susceptible. Rats are more immune, especially the white rat. Behring, Sawtchenko, Metchnikoff and Roux have shown that the serum of white rats contains a lysin capable of dissolving the bacillus *in vitro*.

BACTERIOLOGY. The bacillus of anthrax was discovered by a Polander in 1849 and a great amount of work has been done with it since then. In staining properties and cultural characteristics it much resembles the following organisms from which it differs chiefly in its pathogenicity, more feathery colonies on agar, and the fact that it is always non motile.

1. *Mycoides* group, e.g., *B. mycoides* and *B. ramosus*.
2. *Subtilis* (or hay bacillus) group, e.g., *B. megatherium*.
3. *Vulgatus* group, e.g., *B. mesentericus*, *B. mesentericus fuscus*, *B. mesentericus ruber*.

A motile bacillus (*B. maydis*) resembling *B. anthracis* is said to occur in the stools of pelagrins. The relationship of the organism to pelagra is not known but the serum of pelagrins is said to agglutinate it. When *B. anthracis* is grown at 37° C. in presence of air, spores are very quickly formed, but when grown above 4.25°C. no spores are formed and if the culture is incubated for eight to ten days the virulence of the organism is greatly reduced so that inoculation is harmless to guinea pigs and rabbits. Sheep and cattle when inoculated with this attenuated bacillus suffer from a mild attack of anthrax and become immune to a fully virulent culture. If the non-sporing attenuated form be recultured at 37°C spores will again form but the virulence does not return. Non sporing bacilli die in about fifteen days, but spores may remain alive and fully virulent in the soil for fifteen years or longer. The non-sporing organism is killed in half an hour by heating to 51°C. Spores in the dry state will resist a temperature of 100°C. for hours, but are quickly killed at that temperature when in the presence of moisture, e.g., by boiling.

Various bacteria, especially the *B. pyocyaneus*, shows marked antagonism to *B. anthracis*. Pyocyanase digests the *B. anthracis* and has been used to cure animals infected with it.

SYMPTOMS. In malignant pustule the site of infection is

usually some exposed part of the body as the face, neck, hands or arms. The term "malignant pustule", though the one used by all authors to describe this form of anthrax infection, is not correct, as the vesicles formed always contain clear serum and never pus as the name would lead us to believe. In malignant pustule the infection occurs through an abrasion or cut in the skin, as a scratch of a nail or the cut of a razor. The wound may be very minute and be overlooked until after death. The infection is transmitted by means of the spores or bacilli which gain entrance to the body tissues through the skin wound and after an incubation period varying from a few hours to several days a small red irritable pimple appears. Much infiltration of the surrounding tissue occurs which becomes red and indurated and a ring of vesicles appears which first contain serum but later contain a blood-stained fluid and are crowded with anthrax bacilli. After twelve to twenty-four hours the central pimple, which has also become vesicular and now contains a serosanguinous fluid bursts, and the tissue dries forming a dark brown or black eschar or slough. The process in the surrounding tissue becomes more marked, the induration extends, the skin around the central eschar or slough is a brilliant red and covered with fresh vesicles and as they burst the eschar increases in size. The surrounding area is swollen and tender and the neighbouring lymph glands become swollen. The affected part is hot and itchy, but the patient may not complain of much pain. The swelling in the neighbouring tissue progresses rapidly and soon causes much local discomfort, as difficulty in breathing, and in swallowing if any infection occurs in the neck region. Constitutional disturbance may not at first be severe but soon a rise of temperature, increased pulse, headache, nausea, vomiting, giddiness, great restlessness, pains in the limbs or numbness of the extremities may be complained of and later delirium occurs. In some of the more virulent cases, as in Case 1, the progress is much more rapid, and a fatal termination may occur within twenty-four hours. From the point of inoculation a rapid spreading of the infection into the surrounding tissues occurs, possibly without much local manifestation in the way of a malignant pustule. If the point of entrance is on the face or neck the cervical and mediastinal glands rapidly become swollen, and there is a general cedema of the tissues of the neck, chest, and back. The temperature rises rapidly and the pulse becomes fast and feeble. Severe headache with pain in the chest and abdomen follows within a few hours. The temp-

erature from being raised may suddenly drop to subnormal. Respirations become shallow and embarrassed, delirium and coma following. There may be much oedema of the neighbouring tissues and lymph glands for as long as fifteen or eighteen hours, in some cases, before the infection spreads away from the primary pustule.

The bacilli are formed in small numbers after death throughout the blood stream, but the patient dies of toxæmia rather than septicæmia which is the cause of death in animals—the blood in them being loaded with the organisms. One attack in man confers absolute immunity.

CASE HISTORIES. Case 1. An officer of the C.A.M.C. on January 1st, while shaving, nicked himself with his razor, causing a small cut in the skin of the left cheek just in front of the ear. This was the first time a new shaving brush, procured in one of the small shops of the camp had been used. Nothing out of the ordinary was felt until the morning of January 3rd, when patient came to the operating room and reported he was feeling "seedy" and thought he would go and lie down. The left side of the face and neck were somewhat swollen and painful and he said he thought he was in for mumps. During the afternoon he felt worse and was seen by one of the medical officers. His temperature was then 102° F., pulse 120 and respirations 36. He was complaining of severe bilateral headache and stated he was chilly. He refused any nourishment and said that even water was repulsive to him. Towards evening he complained of difficulty in swallowing and breathing and had severe pain in his chest. His respiration was now 40, shallow and with an audible grunt. Pneumonia was feared and a consultation of three medical men was held and a careful examination of the chest made, but nothing of any abnormal nature was found. About 7 p.m. nausea and vomiting began and the bilateral headache became of the most agonizing character in spite of the medication which had been given for its relief. The vomiting became more acute and at intervals of every half hour clear gastric secretion streaked with blood was thrown off. He complained of pain in his back and limbs, and was very restless, and uncomfortable. His face and neck were becoming more swollen and very painful. Careful examination showed a razor cut anterior to the left ear which was practically healed and at that stage did not show any of the definite appearance of malignant pustule. Pain in the chest was increasing and patient was also complaining of severe pain in the epigastric

region. The pain complained of now was principally over the right lung, over the liver and in the back. Enemas were given and although the results were good no benefit resulted. Morphine was given hypodermically without benefit. About 10 p.m. a petechial rash was discernible on the abdomen. A diagnosis of cerebro-spinal fever was now made and arrangements for a lumbar puncture ordered. Patient was now slightly delirious and complained of great difficulty in swallowing and breathing. Vomiting still continued and great distress was apparent. Towards midnight convulsive seizures began, lasting about thirty seconds and occurring every few minutes. The temperature had fallen now to 99 4-5° F., the pulse was fast and thready. The petechial spots now extended over the thorax and on to the arms and legs. A lumbar puncture was performed and about 20 c.c. of bloody fluid was withdrawn. Shortly after midnight he became unconscious, with more or less general paralysis. Later there was slight twitching of the muscles, eyes were rolled upwards, and breathing very much embarrassed. The state of coma gradually deepened and death occurred within eighteen hours of the onset. Examination of the cerebro-spinal fluid showed it to be teeming with anthrax bacilli.

Facts of interest in this case are: 1. The acute onset, giving almost a perfect picture of the fulminating type of cerebro-spinal fever. 2. The infection was received from a shaving brush through a very slight razor nick, which afterwards practically healed and did not look at all like a malignant pustule but when this sore was excised and examined in the pathological laboratory it was found to be infected with anthrax bacilli. 3. The swelling of the face and neck was entirely confined to the side in which the cut occurred.

Case 2. Admitted to Bramshott Military Hospital on the night of February 27th, with following history. On February 22nd had procured a new shaving brush from Quartermaster Stores and used it for the first time on February 25th, and while shaving cut his left cheek slightly, causing free bleeding. Towards evening he began to feel poorly and complained of slight pain in region of the cut. He felt ill during the night, but did not call his medical officer. On the morning of February 26th, he shaved again, when he opened the old cut and it again bled freely. During the early part of the morning he felt better so did not report on the regular sick parade held each morning. Shortly before noon he noticed his face was swelling very rapidly around the cut,

down the side of his neck and in front and behind the ear so that his ear stood out from his head. He reported to his medical officer who examined his face and skin and said he thought a boil was developing. A moist antiseptic dressing was applied. During the afternoon he felt worse, had a chill and was suffering from a severe headache. He also noticed it was becoming difficult to swallow and that the swelling of the neck and face was increasing. He was seen in the evening by his medical officer who prescribed for him and ordered the dressings to his face changed. During the night of the 26th, he was very restless, complaining of severe pain about the cheek and experiencing great difficulty in swallowing and breathing, on account of the great increase in the swelling of these parts. He said he constantly felt as if he were going to choke. He had a severe headache and nausea, vomiting and shivering. Next morning, feeling very ill and exhausted, he reported to his medical officer who advised removal to the hospital. He was kept for observation in the sick detention hut during the day and arrived at the hospital at 11 p.m., February 27th. On examination he was complaining of headache, soreness and pain in the back, and numbness of the hands and feet, stating that they felt as if they had gone to sleep. The temperature was 102.3-5° F., pulse 140 and very weak. The radial could scarcely be felt. The left side of the face and neck were very much swollen, the swelling extending down over the sternum. Respirations were shallow and embarrassed. On the left cheek there was a large malignant pustule with the typical central eschar and the surrounding red indurated ring with a few vesicles on its inner edge. A smear was immediately made from the pustule and anthrax bacilli were found. Some blood was also taken for a blood culture. The treatment described below was at once carried out. Unfortunately the patient did not respond to the treatment. The following day his temperature dropped to 98° F. About noon he commenced to have a muscular twitching which subsided into coma and he died at 5.30 p.m.

It is to be noted that while in Case 1 everything pointed to meningeal irritation, in this case he was free from definite meningeal symptoms and remained perfectly clear mentally until an hour before death.

Treatment. Probably in no other infection does the prognosis depend so much on an early diagnosis with early treatment following. The bacilli remain at the site of infection from fifteen to eighteen hours, but after this period they enter the blood stream,

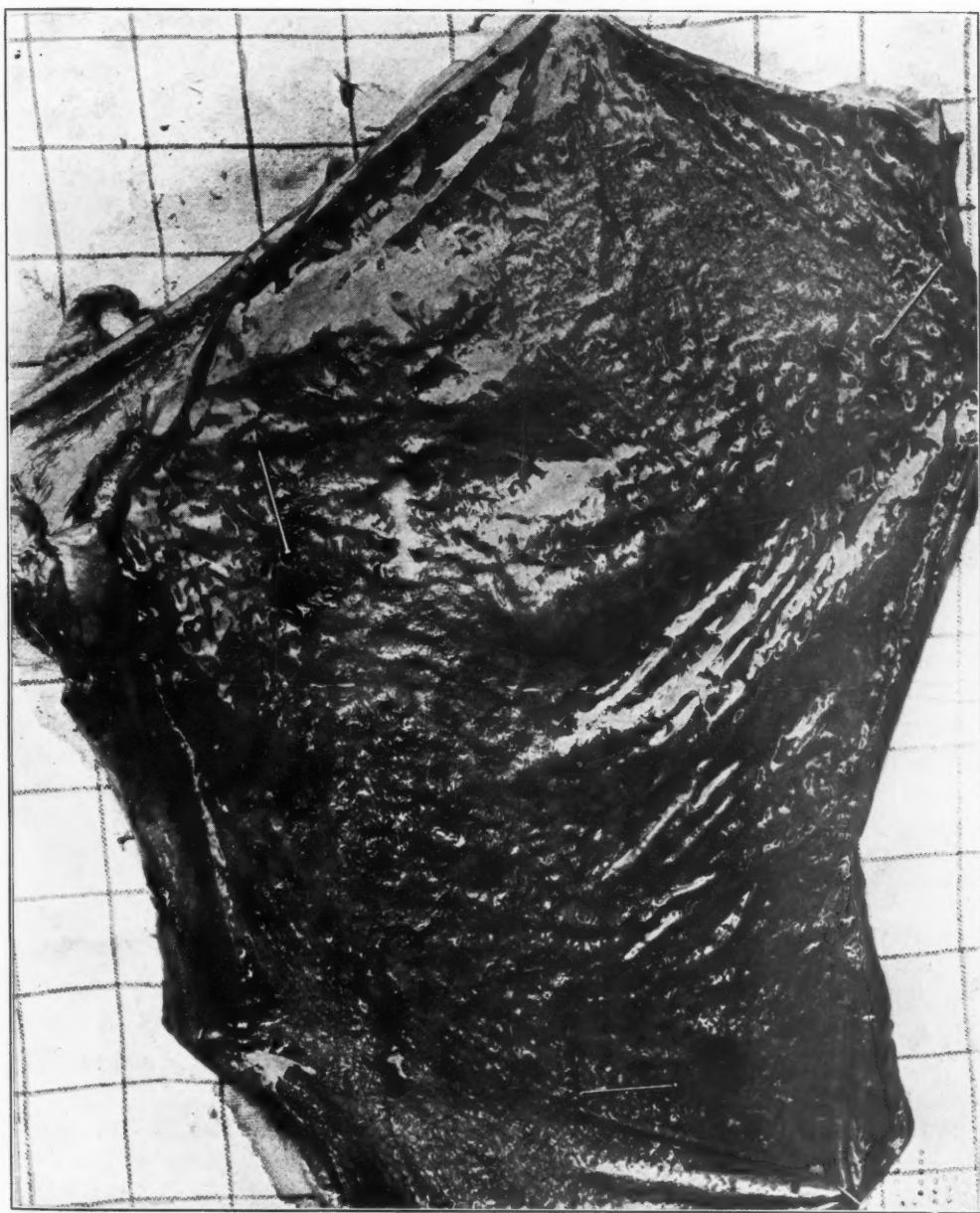
and the patient's chances become increasingly grave with every hour lost. As in tetanus and diphtheria, serum has proved to be the most efficient remedy at our disposal. In 1897, Sclavo prepared an anti-anthrax serum from cases which has given most encouraging results; in a series of cases reducing the death rate from 24.1 per cent. to 6.09 per cent. The serum should be administered immediately after the diagnosis is made and the first dose should be at least 40 c.c., which may be repeated if necessary. As to the mode of giving, authorities disagree. Park in his Cutter Lecture at the Harvard Medical School insisted that it should be given intravenously. He claims in diphtheria that 500 units of antitoxin given intravenously have as much effect as 20,000 units given subcutaneously. He also recommends the initial dose to be 80-100 c.c. of anti-anthrax serum which may be followed at a suitable interval by 20 c.c. Recently Leishman and Smallman have published an article against the giving of serums intravenously on account of introducing the risk of anaphylactic shock, from which other methods are free.

The immediate results of giving the serum intravenously may be rather startling. There may be a severe rigor and temperature goes up to 105° F. or over, the swelling increases and the patient in appearance looks worse than ever. In a few hours improvement commences, the temperature becomes normal, the swelling subsides, and within eighteen hours it is found the bacilli have entirely disappeared from the lesions. After administering the anti-anthrax serum, preparation should be made for the free excision of the pustule. This should be done under novocaine and with every surgical care. The pustule must not be touched and all surrounding tissue handled very gently to prevent any possibility of spreading the infection. The incision should be made at least half an inch from the edge of the inflamed area, and go deep enough to get well underneath the base. After excising the pustule en masse the raw surface of the wound must be swabbed with pure carbolic or touched by the actual cautery. The wound should be left open and a sterile dressing applied.

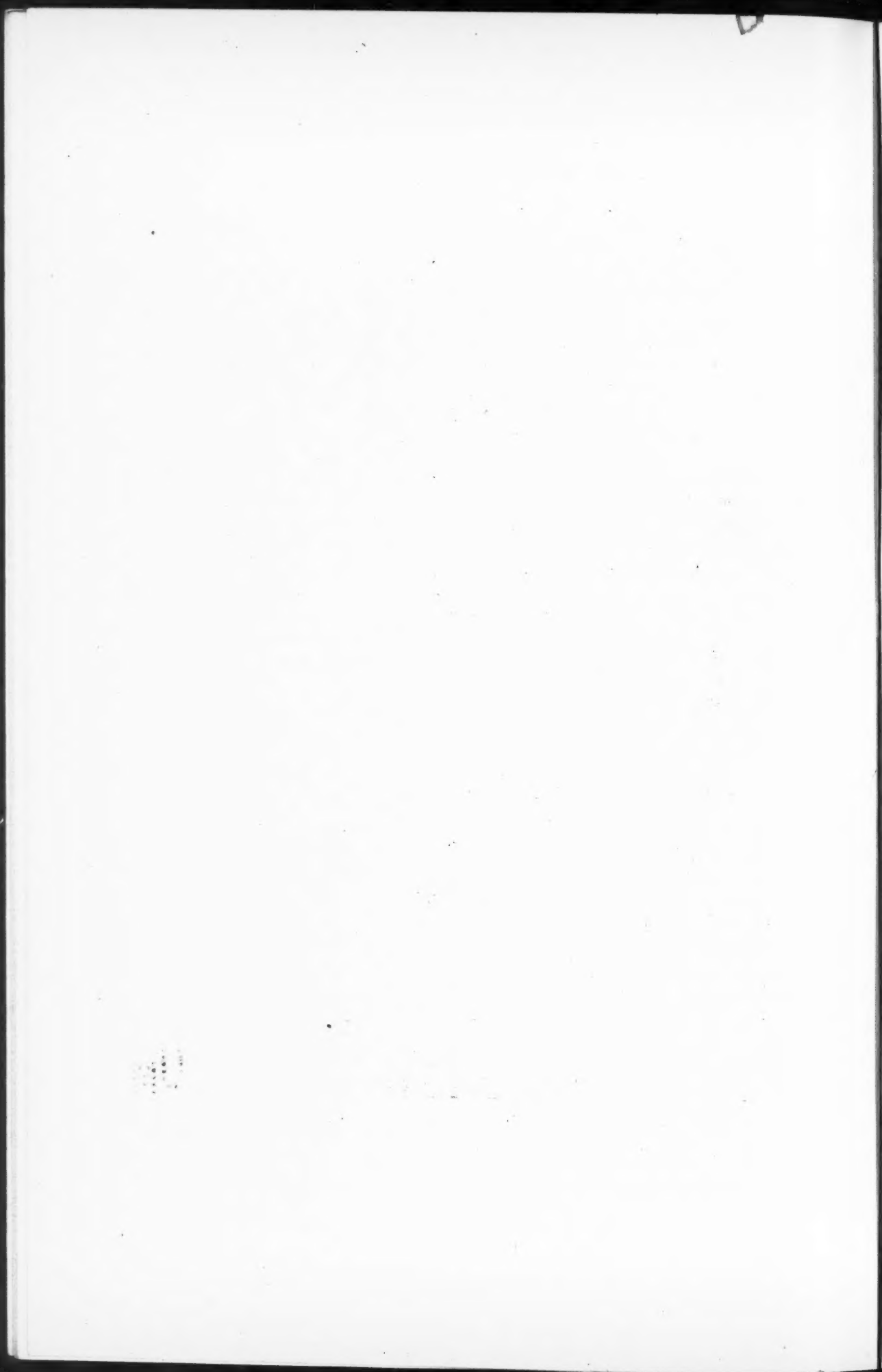
For the pain morphine may be given, and quinine in ten grain doses every four hours has appeared helpful. Powdered ipecac in forty grain doses every four hours has also been employed with apparent benefit. With this, careful feeding, and stimulating the patient as freely as possible is carried out.

However, our main hope for successful recovery is serum administered intravenously at the earliest possible moment. If

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Internal surface of stomach, Case 2. Pins point to three ulcerated areas.



the serum is given subcutaneously it should be injected into four different spots in the abdominal wall, 10 c.c. being given in each place.

Legge has summarized the effect of serum treatment by saying:

1. Even in large doses it is innocuous.
2. It can be well borne even when introduced into the veins.
3. No case taken in an early stage or a moderate severity is fatal if treated with serum.
4. With serum some cases are saved, when the condition is most critical and prognosis almost hopeless.
5. When injected into the veins the serum quickly arrests the extension of the oedematous process so as to reduce notably the danger from suffocation which exists in many of the cases where the pustule is situated on the face or neck.
6. If used soon enough it reduces to a minimum the destruction of the tissues at the site of the pustule.
7. In some situations of the pustule, as the eyelid, serum treatment must be used in preference to any other as it alone can hold out any hope of success without permanent disfigurement.
8. In internal anthrax it is the only treatment which holds out any hope of benefit.

PATHOLOGY. In cases of spontaneous infection in man and the lower animals it is stated that "The less severe the local reaction, the more severe is the subsequent septicæmia". The reverse was true in our two cases. In Case 1 with an insignificant pustule it was very difficult to find the bacilli in blood smears and in sections from the organs: but in Case 2 with a large pustule they could readily be found in the blood, and the spleen was loaded with them. However, the severity of the disease and the intensity of toxæmia in these cases were in inverse proportion to the size of the initial lesions. As elsewhere stated, Case 1 died within twenty-four hours after onset of symptoms, while Case 2 lived for three days; also the toxic degeneration of the tissues was much more marked in the former case.

POST MORTEM EXAMINATIONS. Case 1. Large livid spots on left shoulder, neck and ear. A few petechial spots on chest. Small dark pustule in front of left ear. Left parotid gland much enlarged, swelling extending below inferior maxilla. Rigor mortis present. Blood very dark and fluid. About eight ounces of blood-stained fluid in right pleural cavity. Numerous elevated hæmorrhagic spots over lower lobe of right lung. Left lung and pleura normal. *Pericardium* and heart normal except for cal-

cified coronaries. The *liver* was normal in size but very yellow—microscopical examination showed extreme fatty degeneration. *Stomach* contained a small amount of bloody material—mucous membrane was covered with small elevated hæmorrhagic spots and shallow ulcers with broad red margins, especially at the pyloric end and along the lesser curvature. The *small intestine* showed smaller though similar lesions in its mucosa. *Mesentery* also had a few small hæmorrhages in it. Spleen very soft and dark red in colour. Microscopical examination showed numerous areas of necrosis and fatty degeneration. *Left kidney* about the size of a small hen's egg and tightly bound to lumbar muscles (result of old perinephritic abscess). *Right kidney* about twice normal size and cloudy. *Adrenals* normal. *Pancreas* had numerous small hæmorrhages throughout its substance. *Left parotid* extremely œdematous—no hæmorrhage. *Brain*—superficial blood vessels were extremely congested, both cerebral hemispheres were covered almost completely with thick blood clots which were situated between the pia and arachnoid membranes.

Microscopical examination of a smear from contents of pustule on face showed numerous anthrax bacilli and gram positive diplococci. The latter when grown in broth assumed the form of diplo-streptococci. Growths of both organisms were also obtained from the blood. Examination of blood smears showed numerous diplococci and chains of diplo-streptococci and a few anthrax bacilli. Leucocyte count was as follows: Polymorphonuclears 58 per cent., small mononuclears 31 per cent., large 9 per cent., eosinophiles 2 per cent. Smears of the bloody cerebro-spinal fluid showed numerous chains of gram positive bacilli, and gram positive diplococci. Of the leucocytes present from 20 to 25 per cent. were eosinophiles.

Case. A blood count made an hour before death gave the following results—total whites 34,400, polymorphonuclears 77·5 per cent., large lymphocytes 2 per cent., small lymphocytes 18 per cent., transitional 2 per cent., eosinophiles 0·5 per cent. Numerous anthrax bacilli in blood smears. Pure growth of anthrax obtained on culture of blood from finger tip.

Rigor mortis extremely well marked. Considerable œdema of left side of neck and tissues over chest. Abdomen contained a considerable amount of yellow fluid. Extra peritoneal hæmorrhage in interior abdominal wall. Mediastinal tissues were extremely œdematous. *Lungs*—a few old adhesions about apices of both, several large infarcts in each—otherwise normal. *Pericardium* normal. *Heart*—no clotting of contents, the blood being very dark

and fluid. Myocardium very soft. Valves normal. Endothelium of heart and aorta stained a dark brown. *Liver* soft and normal in size, showing fatty areas about blood vessels, upper surface had numerous petechial hæmorrhages under peritoneal covering. *Spleen* normal in size. Tissue was dark brown in colour and mostly fluid, smears showed very numerous chains of anthrax bacilli and streptococci. *Pancreas* normal. *Adrenals* both hæmorrhagic, being quite rounded and full of unclotted blood. *Kidneys* congested but showing no hæmorrhage. *Bladder* about one third full of clear urine. *Omentum* extremely œdematous, being about an inch thick in places. *Stomach* normal in size, showed a number of dark brown spots on surface. On opening, contents were found to be black—(blood). Mucosa showed numerous shallow ulcers about quarter of an inch in diameter with broad red margins. (See photograph).

Small intestines. Two old healing ulcers were found about an inch below pylorus. Mucosa of entire gut showed numerous shallow ulcers with broad red margins. Contents were bloody. *Colon* normal except for a few subperitoneal petechial hæmorrhages in region of cæcum. Ascending colon full of bloody material. Ascending and descending portions surrounded by a mass of œdematous tissue, which was in places two inches thick. *Mesentery* extremely œdematous and full of hæmorrhagic spots. *Brain*—blood vessels extremely dilated. Entire cerebrum between pia and arachnoid maters covered with a layer of slightly clotted blood, which was especially thick over the upper surface. The cerebro-spinal fluid contained numerous chains of anthrax bacilli. Eosinophiles were numerous.

It will be seen from the above that the most striking pathological lesions common to both cases were: 1, the severe cerebral hæmorrhage, and 2, the peculiar type of ulcerations in the stomach and intestines. It was interesting to find the same lesions in a guinea pig which died from anthrax in thirty-six hours after inoculation with a culture obtained from a shaving brush used by the last case. The cerebral hæmorrhage in Case 2 is especially remarkable in view of the fact that he remained conscious up to a short time of his death giving few signs of a meningitic condition. Two other points are worthy of notice: 1, the association of a streptococcic infection with the anthrax in both cases. In Case 1 the septicæmia was mainly coccal and the cerebro-spinal fluid was loaded with them. In Case 2 the infection was mainly limited to the spleen. 2. The large number of eosinophiles found in the blood and cerebro-spinal fluid in these cases.

SUPRAPUBIC PROSTATECTOMY

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IN the short time allotted to this paper it is evident that only the salient points of so large a subject can be briefly touched upon.

Thirty-three per cent. of all normal males over fifty years of age show enlargement of the prostate, 40 per cent. of these presenting symptoms¹.

A malady so prevalent, progressive in its nature, causing ever-increasing discomfort, and finally terminating fatally unless some intercurrent disease brings happy release, demands the frequent consideration of the profession.

After a strenuous discussion extending over a period of many years we find surgeons divided into two schools: those advocating the perineal operation, and the majority in America, at least, strongly favouring the suprapubic route.

It is evident from the literature² that the suprapubic method gains daily in favour; and while many would hesitate to state that the "perineal operation survives only on account of certain contraindications to the suprapubic method";³ nevertheless the majority of surgeons advocate the suprapubic method.

As a matter of fact, either type of operation is feasible, and the mortality of skilled operators is about the same for each. The technique of the suprapubic method is simpler, the functional result equally good, while post operative complications, incontinence, continuance of residual urine and persistent fistulas are reduced to a minimum.⁴

It must be granted that cases requiring surgical treatment for this condition are much too numerous to be dealt with in the clinics of a few specialists; and, while to these men we must ever look for instruction, it is evident that a safe procedure must be

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evolved for the general surgeon with good hospital equipment in order that the benefits of modern surgery may be extended to the greatest number.

It is from this standpoint that the following considerations are offered, only details with which the writer has had personal experience being considered.

Some of the cases were met with in the practice of Dr. Hadley Williams, the others are personal cases.

SELECTION OF CASES FOR OPERATION⁵

If one is to obtain a reasonable number of successful results it becomes necessary to select the cases with great care and institute appropriate treatment for each individual case. In no branch of surgery is operation "by rule" attended with such dire results. The following points must be carefully investigated:

(a) Kidney function with capacity for improvement under treatment.

(b) The cardio-vascular condition.

(c) Infection.

(d) The nature of the growth.

(a) Kidney function. While admitting the fallacy of depending on any one test we have found that the phenol sulphone-phthalein test introduced by Rowntree and Gerraghty⁶ is by far the most valuable. The twenty-four hour output of urine, specific gravity, total urea and microscopic findings are of value and should certainly not be neglected. In regard to the phthalein test⁷ the writer has used it since 1911, and has found in discussing the point with Canadian surgeons, that many fail to appreciate its value.

It is a common expression to hear: "I depend on the specific gravity—below 1010 being unsafe." In our limited experience we have met several instances where the specific gravity and phthalein output did *not* correspond, and specific gravity would have been a misleading guide. Young⁸ and others are enthusiastic over the value of this test, and, we think, with good reason.

As an index to improvement under preliminary treatment the test is by far the most important guide we have⁹. The technique is not difficult, being easier than the estimation of the hæmoglobin. It seems possible that with care the kidney factor can be fairly accurately estimated.

(b) The cardio-vascular factor we have found more difficult to estimate, and it has been our chief factor in unsuccessful

cases. In every case the opinion of an experienced internist should be sought on this point and the preliminary treatment directed by him.

Blood pressure, particularly the range between diastolic and systolic pressure (pulse pressure) and the estimation of myocardial efficiency are the important factors. Valvular lesions are not a contraindication to operation if they are fully compensated. Decompensation is an absolute contraindication to operation whatever the underlying cause.

This class of case shows marked improvement under appropriate preliminary treatment.

(e) Infection. Cystitis is best relieved by suprapubic drainage, many weeks being required in severe cases. Bladder lavage with hypertonic saline (5 per cent.) is of service in these cases.

Epididymitis may be prevented by irrigation of the urethra with 5 per cent. argyrol⁸ before each catheterization. Its onset calls for immediate suspension of the use of the retention catheter⁹, which undoubtedly predisposes to this complication in cases of severe cystitis.⁹

(d) Character of the growth. Cancer of the prostate is much commoner than many suppose,^{10, 11} and may occur at an early age.^{12, 13}

"When retention supervenes on vesical irritation in months instead of years, after difficult and painful urination, mostly at night; when infiltration, bullet-like, board-like, leather-like or ivory-like is found in the prostate of a man who presents no symptoms of active syphilis or tuberculosis and whose blood pressure gives a negative Wassermann reaction; when the capsule of the gland has become adherent to the anterior pelvic fascia or the fascia of Denvillier and the peri-rectal fascia, but the rectal tissues are no longer movable on it, and it has lost its mobility in the pelvis, and the prostatic image to the sense of touch has become blended with one or both seminal vesicles, without the presence of acute inflammatory symptoms; when the central groove is blurred or lost, examining by the rectum over a steel instrument in the urethra; and, added to this, is loss of strength, and pain in the back, pain in the rectum, cedema of the lower extremities and neuralgia along the course of the sciatic obturator or crural nerves, it is safe to make a diagnosis of cancer of the prostate."¹⁴

Our experience with four cases that proved to be malignant on microscopical examination is not encouraging.

PREPARATORY TREATMENT

The importance of this is so universally recognized that it is not likely to be neglected. However, its importance cannot be over emphasized.^{3, 8, 15, 16, 17} This has been an important factor in lowering the mortality of the operation.

Water. Six ounces every hour, or three quarts in twenty-four hours has improved greatly the kidney function in conjunction with a relief of back pressure. The kidney was formerly the most vital factor, half of Freyer's deaths being due to this cause.¹⁸

In general, surgeons are opposed to restriction of diet preliminary to any operation, and in this class of case as liberal a diet as can be assimilated should be given.

TECHNIQUE

While it is true that an occasional case may justify the operation being done at one sitting, it seems to be the consensus of opinion that the two-stage operation has increased greatly the margin of safety.¹⁹

The first stage—cystostomy—is done under local anæsthesia, opening the bladder on the point of a sound as suggested by Murphy.²⁰

If calculi are present they are removed at this stage. (In a recent case we removed seventy-four calculi from the bladder of a prostatic case aged seventy-eight, under local anæsthesia.)

Dr. Hadley Williams²¹ has drawn attention to a valuable procedure in bad cases of septic bladder, viz., the three-stage operation. We believe that in several instances this was a life-saving procedure. The subsequent enucleation is performed under ether or nitrous oxide.

Much discussion has centred around what part of the gland is removed by the suprapubic method. It seems evident now that most are agreed that the procedure is really an enucleation of the enlarged lobes much in the same manner as a fibroid is occasionally shelled out from the uterine wall.²⁰ The posterior portion carrying the ejaculatory ducts is left behind when the enucleation is properly done. This is an important item and retains the sexual function as effectively as by the perineal route.¹⁹

We have found that a sound in the urethra was a distinct aid in emphasizing important landmarks.

The ease with which the lobes shell out varies in different

cases. Some shell out clean in a few seconds, others separate with difficulty and may even have to be removed piece meal.²⁰

The matter of hæmorrhage is much more serious in many cases than some authors would lead one to believe. Any one who has had experience with these cases will admit that this is often a serious factor and has been fatal in many cases. The anæmia consequent on the loss of blood greatly lowers the patient's resistance to infection and favours complications.

We have used the Hagner bag²² during the past two years and find it most efficient. If fixed to the thigh with adhesive, any degree of pressure can be exerted on the prostatic bed.

AFTER TREATMENT

Of first importance is the nursing. No class of surgical case shows the character of the surgical nurse so strikingly. When possible nurses who have had experience and special training in these cases should be employed. Opinions differ as to whether male or female nurses do the best work.

Efficient bladder drainage is of primary importance. The interval syphon is very efficient and saves much work on the part of the attendants. We have introduced a syphon which can be easily set up in any ward, is silent and efficient.²⁴ The use of the Murphy drip or rectal tube is attended with much risk in these cases and should not be used. Cases of rectal fistula and two cases of fatal hæmorrhage from the passage of the rectal tube have been reported.¹⁹

Close watch should be kept for complications as early recognition is the best treatment.

Acute renal suppression is the most fatal. It must be recognized in its earliest manifestation and prompt treatment instituted, the critical period being twenty-four to seventy-two hours following operation.

Persistent nausea or beginning singultus may be the first signs.²³

Other complications. Sloughing, epididymitis, phlebitis, and secondary hæmorrhage are due to local infection and can best be eliminated by efficient bladder drainage. Their onset should be closely watched for and appropriate treatment immediately instituted.

CONCLUSIONS

1. Suprapubic prostatectomy is the operation of choice in the majority of cases of enlarged prostate.
2. The phenol-sulphon-phthalein test should be employed to estimate renal function and its improvement under treatment.
3. The cardio vascular factor is perhaps the greatest danger, but it can be improved by treatment.
4. Many cases need prolonged preliminary treatment, often for many weeks.
5. The two and in some cases three-stage operation adds a factor of safety.
6. All precautions should be taken to lessen the amount of blood lost.
7. Employment of nurses experienced in handling this type of case is essential to success.
8. Efficient bladder drainage is the best preventive of post operative complications.

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THE Alvarenga Prize for 1917 has been awarded to Dr. Wilbur C. Davidson, Baltimore, for his essay entitled: "The superiority of inoculations with mixed triple vaccine (B. typhosus, B. paratyphosus A, and B. paratyphosus B) over successive inoculations with the single vaccines, as shown by agglutinin curves in men and rabbits."

THE SURGICAL TREATMENT OF PERNICIOUS ANÆMIA

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PERNICIOUS anæmia and its treatment are usually considered in common with allied diseases, as splenic anæmia, hæmolytic jaundice, secondary syphilitic anæmia, etc., and the surgical treatment is much the same, splenectomy. In pernicious anæmia the surgical treatment is still under discussion, and this paper will attempt to present the present status of this question.

By pernicious anæmia is meant that serious disease, usually of late adult life, characterized by progressive anæmia of aplastic type, high colour index, low red cell and hæmoglobin counts, no leucocytosis, retention fairly well of body weight, a yellow tinge to the skin, associated with relapses and remissions, often with spinal cord changes, and progressing to a fatal termination in six months to five years, usually in one to three years. It claims as its victims persons in the prime of life, in active public service, occurs amongst the wealthy and powerful in the land, and is as fatal as cancer, and so far has been less amenable to cure.

The present day treatment by transfusion of whole blood and splenectomy has been evolved as a result of extensive studies on the etiology and pathology of the disease. Theories of its causation have been numerous, but at present three factors are seriously considered.

All cases show, during their course, fever of moderate degree, evidences of hæmolysis, evidences of deficient blood formation—deficient for the individual in that hæmolysis exceeds blood regeneration—and often evidences of sub-infections, as pyorrhœa alveolaris, cholecystitis, recurrent appendicitis, etc. Consequently we have the toxin theory. Toxins are probably present in all cases to some extent, and the toxins destroy the formed blood.

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The second theory is that pernicious anæmia may be due to deficient blood-forming organs, or, thirdly, due to persistent increased hæmolysis. King¹ and others have studied this question and the conclusions arrived at may be summarized.

In all anæmias due to toxins, nematodes, chemicals, benzol, there is an increase in the unsaturated fatty acids in the blood, and the total fats and cholesterins are decreased. These latter resist hæmolytic agents. The same condition is present in pernicious anæmia.

Operators at the time of doing a splenectomy find, in most cases, evidences of appendicitis, cholecystitis and cholelithiasis, and, in a large number of cases examined bacteriologically, there were obtained cultures from the appendix, gall bladder and spleen of the streptococcus viridans and colon bacillus, the former a powerful hæmolytic organism. Smithies reported last June that 90 per cent. of cases showed subinfections in appendix and gall bladder and all showed chronic infective changes in the spleen. The spleen is often found enlarged. The blood forming organs, the bone marrow, are hyperfunctionating early in the disease, as evidenced by bone tenderness, many embryonic red cells in the circulation, and proven by autopsies in early cases. Later these organs are exhausted and late findings show decreased blood forming power in the marrow of the long bones. The increased hæmolysis is shown by the evidences of blood destruction, found on examination of the stools and urine, with marked increase of urobilin. In pernicious anæmia the worn out red cells, or those sensitized elsewhere by toxins, are broken down by the spleen, hæmatin is given up to the spleen—liver circulation, forming bilirubin and biliverdin in excess. The bile secretion meeting the bacteria flora of the intestines evolves urobilin readily detected in excess in all cases of pernicious anæmia especially during a relapse.

Treatment then must do three things: (1) remove the source of infection, (2) make up for the lost blood by (a) transfusion of whole blood, (b) stimulation of the blood forming organs, and (3) stop hæmolysis.

The knowledge of spleen physiology and pathology is not yet complete but some facts are accepted.

No internal secretion has been established for the spleen. Its presence in the body is not necessary to the well being of the individual. Even after removal patients go through acute infections equally well with those not splenectomized.

It is the great hæmolytic organ. After its removal there is lessened urobilin excreted. There is lessening of the unsaturated fatty acids in the blood and an increase of fats and cholesterins.

After splenectomy done in cases for injury of the organ some cases of polycythæmia have resulted. After the removal digestion is improved, appetite is increased and the stomach malaise decreases. The pancreatic secretion is increased also.

Pepper and Austin estimated that in cases of pernicious anæmia the urobilin and urobilinogen before operation was three times the normal amount. Two months after operation these were only one-seventh of the quantity before operation.

W. W. Roblee¹ shows that after splenectomy the hæmolymph glands increase in size and function and sometimes in number in dogs. The thymus shows hypertrophy and the resistance of the red blood cells is increased. Experimentally it is difficult to produce jaundice by injections of toxins in dogs whose spleens have been removed, and it is easy in normal dogs.

Clinically the results of splenectomy will be discussed later.

Therefore we believe, that experimentally, and from pathological and bacteriological studies splenectomy is a rational treatment for pernicious anæmia.

Splenectomy for pernicious anæmia was first done in March, 1913, and in the last three years many cases have been recorded and this therapy is now established.

The transfusion of blood is necessarily an adjunct of treatment, and to treat a case of pernicious anæmia one must be prepared to carry out multiple transfusions. The introduction of whole blood produces definite results. It immediately makes up for blood loss. The red cells are living cells and last for two to twenty-one days. There is an immediate improvement in appearance and well-being of the patient. The blood picture improves. The hæmoglobin increases 10 to 20 per cent., the red cell count goes up 500,000 to 1,000,000 and appetite and digestion improve. Transfusion stimulates the bone marrow, and there is found after it certain definite findings. Nucleated red cells appear in the blood. It does not make new the worn out organs but helps tide over their period of repair and gives a stimulus to new growth. It prolongs the periods of remission of the disease and often initiates a remission, in one of my cases one transfusion started a remission which carried the patient's blood almost to normal, and which lasted for over four months. It increases resisting power, lowers temperature and prepares for splenectomy.

A single transfusion will no more cure pernicious anæmia than will one injection of mercury cure syphilis. Blood transfusion should be carried out systematically, repeated in a week after the first and thereafter till the hæmoglobin is above 90 per cent. and then kept not lower than 75 per cent. No authentic cures have yet been recorded, though R. D. McClure³ has obtained excellent results in a series of cases where transfusion has been done ten to fourteen times and splenectomy during the series. Failures in doing transfusion are due to improper selection of donors and lack of systematic treatment. In all clinics I find that the agglutination test is the one depended upon, and the grouping of donors into the four blood groups of Moss facilitates the work. Chills and fever will occur in about 10 per cent. of cases, but hæmolysis and blood loss not in cases of properly selected donors. Tables giving results of blood improvement after transfusion are so common in the literature, that I simply state that in no case that I have done has there been a failure to show an immediate rise in the red cell count and hæmoglobin percentage save in two cases where hæmolysis occurred. All cases will relapse after but one transfusion.

Eppinger noted after splenectomy that there was a diminished output of urobilin. Decostello noted in analogous blood diseases, Banti's disease, etc., that splenectomy was promptly effective and recommended it in pernicious anæmia. Klemperer noted polycythæmia after splenectomy for injury. The operation was advocated by Rauzi in the United States during April and May, 1914, and has been widely practised since. Splenectomy is indicated in patients under fifty years, when less than one year ill, with a relatively good blood picture and especially where the spleen is enlarged and hæmolysis is acute. Accurate observations following splenectomy show there is an immediate polymorphonuclear leucocytosis which passes off in a few days. Later still the blood platelets are increased and still later there is an increase in the reticulated cells. "Splenectomy seems to result in the greatest stimulation of the bone marrow of any known therapeutic measure."⁴

Many cases are not favourable operative risks, and where the hæmoglobin is 25 per cent. or lower preliminary blood transfusions should be done. The method used is immaterial; for multiple transfusions, the citrate method is the simpler, though I have used the Kimpton Brown and Vincent tubes with great satisfaction. In selected cases the mortality of the splenectomy should not be high, not over 7 per cent. The Mayo clinic reports 4 per cent.

mortality in one series of splenectomies. There was noted marked and striking improvement after operation in almost all cases. In all cases reported even with a great improvement in the blood picture after months, or even a year's duration, *the blood does not return to normal type*, and a diagnosis of pernicious anæmia can still be made even though the case is apparently well.

It is noted that the cases with enlarged spleens do best. On the contrary splenectomy should not be done during an acute crisis, or in a period where the patient shows a steady decrease in hæmoglobin and red cells, or mental torpor or cord changes. The latter, of course, shows the terminal period of the disease. W. S. Thayer, of Baltimore, reports one case with spastic paraplegia where splenectomy arrested these neurological symptoms. The patient was well for one and a half years, started a relapse and died in a short time. W. J. Mayo also states splenectomy should be done early before spinal cord changes occur.

Experimentally in animals and clinically in man, the ligation of the splenic arterial supply has been carried out with the same purpose as polar ligation in exophthalmic goitre. This measure would be expected to decrease the function of the spleen. The mortality has been high, 66 per cent. in six cases, and has not been productive of results equal to splenectomy.⁵ It is possible that certain cases where the spleen at operation showed extensive perisplenitis and adhesions would offer a favourable chance for ligation rather than extirpation of the organ.

The technique of the operation does not come within the scope of this paper. It may be said that it can be done with ease in most cases by any abdominal surgeon within the period of time actually taken for a gastro-enterostomy and, with equal care in preparation, with no more shock. It is best to perform operation four to ten days after transfusion when platelets and reticulated cells are increased. It is wise to perform on the table, at the close of the operation, a moderate transfusion, 500 c.c. of whole blood. Balfour of the Mayo Clinic presents the best report on technique for 1916.⁶

The late results of any new treatment or operation are after all the only basis on which definite statements may be made. Most of the splenectomies have been done in 1915 and 1916, and, as we know, the disease shows such long remissions, often even under medical treatment, arsenic, cacodylate of soda, salvarsan, etc., so we are as yet rather too early to make dogmatic statements. All writers, operators and clinical workers agree that

splenectomy (1) initiates in a large percentage of cases a prompt remission, lasting six months usually, rarely one year. (2) That it is the best and most lasting stimulus available for the blood-forming organs. (3) That it does more for the patient than single or repeated blood transfusions. (4) That it prolongs life. I have been unable to find any writer who claims it cures pernicious anæmia.

Krumbhaar reports one hundred and fifty-three cases, with 64.7 per cent. improved clinically, and in blood picture; 15.7 per cent. not improved.

Lee reports in eight out of thirteen cases considerable temporary improvement in two months, persisting up to six months in most of them.

In Krumbhaar's series, six cases lived two years or more, one died of pneumonia three years after operation.

In Cabot's series of twelve hundred cases medically treated, 50 per cent. died in first year, one third during the following year, *three only lived over six years*. Percy reports a case who was an invalid for over two years prior to transfusion and splenectomy, and at the end of twenty-seven months was in excellent shape. Griffin reports from Rochester similar late results, thirty-nine cases with an operative mortality of three, and in June, 1916, twenty-seven cases were in good, or fairly good, condition; one lived three years.

CONCLUSIONS

Pernicious anæmia continues to be a fatal disease. Under ordinary medical treatment the duration of the disease is shorter than under surgical treatment by transfusion and splenectomy. Cases do best who come earliest under the above treatment.

The treatment must be systematic and carried out by one who is able to provide suitable donors, and to carry out the necessary blood tests for obtaining these donors.

Splenectomy should be done at a suitable time, properly prepared for, and followed by transfusion from time to time.

And of equal importance as transfusion and splenectomy, all foci of infection must be looked for and removed. The operator must be ready to do an appendectomy and cholecystectomy at the time of operation for the removal of the spleen.

Till further researches prove that there is a definite single cause for pernicious anæmia, we must conclude that the anæmia is due to some toxins or hæmolytic bacteria from hidden foci of

infection, assisted and furthered by a pathological and actively hæmolytic spleen.

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THROUGH the generous offer of the Cancer Commission of Harvard University a free diagnosis service was established in Massachusetts on October 1st, 1917. This service offers to the registered physicians of the State opportunity for the free diagnosis of pathological material removed at operation. Restrictions upon the employment of the exploratory incision in cancer tissue have been announced in connexion with this service.

MINOR INFECTIONS AND QUARANTINE

PRESIDENTIAL ADDRESS WAS GIVEN BY DR. LINCOLN
IN 1917

By T. H. WHITELAW, B.A., M.B.

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IN the regulations of the Provincial Health Act governing the minor infections, the intention is just as for the more serious infections, to limit and control the spread of these diseases in the community. The object of this paper is to throw some light on the practical working of these regulations, the effect their enforcement has on school attendance, and to indicate to what extent they fulfil the objects aimed at.

As regards measles, the diagnosis is usually in the great majority of cases easily made, and it is probable that a large proportion of cases, during an epidemic in our cities, is subjected to the modified quarantine imposed by the regulations, especially during the months the schools are open, when it is almost impossible for a family which has children of school age, to conceal cases of this disease and successfully to evade quarantine. The school teachers, medical inspector of schools and truant officer assist the health department greatly in obtaining information of cases of infectious disease which might otherwise be overlooked or concealed. And what are the practical results of quarantining measles? In so far as my experience goes, an epidemic once started will run its course, apparently only slightly, if at all, influenced by any measures of prevention which may be taken. The extreme infectiveness of this disease for several days before the diagnosis is usually made, is obviously the reason for this apparent failure of the quarantine regulations. The percentage of grown adults who have escaped measles during childhood is extremely low, and when I have been called upon to treat a case of measles in an adult, the symptoms have usually been so severe and dangerous, that I have not as a rule congratulated the patient on having escaped the disease in childhood. From January to May, 1916,

Read at Alberta Medical Association Meeting in Calgary September 27th, 1917.

among several thousand soldiers in barracks in Edmonton, eighty-eight cases of measles were admitted to the isolation hospital. Very few of these had had the disease before and the majority had it in a very severe form, four deaths occurring among the eighty-eight cases. The medical officers in charge did everything possible to isolate suspects and remove cases to the hospital on the first appearance of symptoms, but in spite of their vigilance probably every man in these battalions susceptible to the disease, practically all those who had not had the disease in infancy, developed the infection. Because of these remarks I do not wish to be understood as advocating that a child should deliberately be exposed to infection in order to get it over, and yet parents who express and hold these opinions should not perhaps be criticized too severely, provided they see to it that their children are guarded against infection as far as possible when they are in poor health, or during that period of the year when complications are most likely to develop.

It being admitted that efforts made to control the spread of measles during an extensive epidemic are so utterly futile, the question arises as to what benefit the community derives from debarring from school attendance, children who already have had measles, because a younger child in the family is subjected to modified quarantine. All others from the same household are, under the regulations, permitted to leave and enter the house and mingle with the community without restriction. It is a notorious fact that during an epidemic of measles, school attendance is cut down to a minimum by the enforcement of this school regulation, and hundreds of children who are insusceptible to the disease, and no more likely to be carriers of infection than their elders, are for weeks debarred from obtaining their education. As a result of this possibly too drastic school regulation a direct inducement is held out to parents solicitous about their children's education, to conceal if possible a case of measles in the family under the school age, and this can be done with impunity provided the older children attending school are all insusceptible and the case or cases are not, in the parents' opinion, sufficiently severe to require a physician. In this way medical advice so necessary in the majority of cases to prevent sequelæ and complications, is frequently not obtained, to the permanent detriment of the patient and the disadvantage of the family physician. As a substitute for the present regulation, I offer as a suggestion, that all children who already have had the measles should be allowed to

attend school during an epidemic, and that only those who have not had the disease should be excluded in families where the infection exists. Inasmuch as the great majority of children of school age have had the disease, this could only affect a minority and would prove just as effective, or more so, in controlling an epidemic without the frightful cost in loss of school attendance. It may be suggested as an objection to this method, that second attacks are not uncommon, but in my opinion the failure to recognize the distinction between measles and German measles, accounts for a great many of these so-called secondary attacks, and in any case they are so rare as to be negligible in proportion to the total number of cases.

Whooping-cough, like measles, is a much more serious disease than commonly estimated by the community. In 1914, twenty-one deaths in Edmonton were due to whooping-cough, while diphtheria, scarlet fever and measles combined, only caused twelve deaths. In 1915 and 1916, only one death for each year was recorded as due to whooping-cough, the disease being much less common. During the present year it is again very prevalent and the death rate is likely to be again high. In the year 1913, the death rate per 100,000 of population in the following cities was:

| | |
|-----------------|------|
| Toronto..... | 8.6 |
| Montreal..... | 7.6 |
| New York..... | 7.9 |
| Boston..... | 13.2 |
| Belfast..... | 10.4 |
| London..... | 17.7 |
| Birmingham..... | 18.8 |
| Liverpool..... | 30.3 |
| Edinburgh..... | 37. |
| Glasgow..... | 72.8 |

In New York last year there were 420 deaths from whooping-cough of which

- 50 per cent. were in the first year.
- 33 per cent. were in the second year.
- 9 per cent. were in the third year.
- 5 per cent. were in the fourth year.
- 2 per cent. were in the fifth year.
- 1 per cent. were over five years of age.

Whooping-cough among children under one year of age causes

more deaths than any other infectious disease, the most dangerous period being between the ninth and twelfth months, when the mortality is over 18 per cent. In addition to this it is probable that a great many cases of tuberculosis in after life have their origin in the undermining effects of whooping-cough. And what are we doing in the way of preventing this disease is a pertinent question. We quarantine, or penalize a minority of the community who are public-spirited or honest enough to report to the health department, or who employ a physician who can conceive it as a part of his duty to report the case and have quarantine established. I am satisfied that less than 50 per cent. of cases of this disease are reported to the health department or come under their supervision in the cities, and in the country districts practically none at all. It is quite common to find mothers taking their infants or young children on trains, street cars, to picture shows or Sunday school while in the early, acutely infective, or vomiting stage, with an absolute disregard of the danger of infecting other children with whom they may come in contact. If summoned to court for this, a plea of ignorance of the disease, unless a physician be involved, is usually sufficient to secure an acquittal. On the other hand, where families are living in apartments, or in crowded, or insanitary surroundings, it becomes a positive menace to the child affected, to carry out the provisions of the modified quarantine by our public health regulations, which quarantine orders that the child must be kept strictly confined to one room if possible, and not taken off the premises. It is a well-known axiom of the treatment of whooping-cough, that fresh air at all times and sometimes a complete change of climate are necessary to restore the child to good health again, or give any chance of recovery.

The causative organism in whooping-cough is now generally recognized to be the Bordet Gengou bacillus, though it cannot always be found. This organism is very short lived, is very hard to grow and is easily destroyed, unless under the most favourable environment. For these reasons it is now considered quite safe to treat whooping-cough cases in cubicles in the same ward with other patients without danger of the disease being transmitted. In support of this theory Dr. Chapin, of Providence, states "there is no evidence that air is a factor of importance in whooping-cough, or in fact in any disease except anthrax and tuberculosis". Dr. Morse states that indirect contagion is very unusual and of little importance.

Authorities differ as to the length of quarantine that should be imposed, some maintaining that it should be kept up until all paroxysmal attacks have ceased, or at least six weeks have elapsed, while Dr. Kerr, of Edinburgh, a weighty authority, believes that whooping-cough loses its infectivity as soon as the paroxysmal stage has fully developed, and that, therefore, isolation is unnecessary after the first two weeks. Formal disinfection of the house is believed to be unnecessary because the vitality of the germs outside of the human body is so slight.

From these facts and statistics we may arrive at the following conclusions.

1. That whooping-cough is a very serious infectious disease, and worthy of the closest attention and supervision by physicians and health departments, who should at all times endeavour to educate the public as to its relative importance as an infectious disease, and the value of medical advice and supervision, with quarantine restrictions.

2. That if we can protect a child from infection till he is five years of age or more, he may then develop whooping-cough with comparative safety because 96 per cent. of deaths from the disease are under five years of age. Quarantine of cases should be rigidly enforced and warnings issued to parents to take all possible precautions to avoid exposing their infants to danger of infection.

3. That to gain the coöperation of the public, and to do away with the most serious inducement to concealment of the disease, should be our endeavour. To this end, therefore, I suggest as an improvement to our present school regulations debarring all children from school in a home where, in many cases, only the baby, or at the worst, children under school age, have this disease—that the older children should be allowed to attend school from houses under modified quarantine for whooping-cough, unless they show symptoms of the disease, when of course they also should be quarantined. The danger of this disease being carried by an intermediary, is in my opinion, for the reasons already given, so slight as to be negligible. The great majority of cases of this disease, moreover, are in children under the school age, partly because older children are much less susceptible to the infection and because some of them have become immune by having had it in infancy. The confinement to the patient's own rooms or premises under quarantine, during the day, might also in the interests of the patient be modified somewhat, without adding materially to the risk of spreading the infection, it being provided that no such case taken

off the premises for an airing should be taken to any other house or public place, or allowed to mingle with, or come into contact with other children. In case it became necessary to travel by rail, in search of climatic conditions more likely to bring about a cure, the securing of a compartment to which the patient could be restricted during the journey, should be made compulsory.

Mumps is another of the minor infections where the same difficulty arises as regards school attendance, and the same carelessness, indifference or reluctance to report cases to the health departments, exists largely because of the exclusion from school required of all other members of the family. Probably in homes where quarantine for mumps is placed, and especially if those who already have had the disease were not debarred from attending school, we should have the disease more fully reported, and have a much more efficient control of the large proportion of cases, which, after all, rather than carriers, are practically the sole source of further infection.

Chicken-pox, as regards danger to life, is the least important of the minor infections, yet the quarantine according to the regulations is just as strict as for scarlet fever and diphtheria. It is assumed as a justification for this anomaly, that many medical men are unable to diagnose between chicken-pox and smallpox. In dealing with quarantine of chicken-pox in Edmonton, the difficulty as regards strict quarantine of all persons in the house, as called for by the regulations, is overcome by giving the adults on the premises the following permit. "Permission is hereby granted to Mr. ——— to enter and leave the premises numbered ——— now under quarantine for chicken-pox, it being distinctly understood that he will not come into contact with the patient and will use every precaution to prevent the spread of the disease." Recently the following permit has been used in cases of whooping-cough. "Permission to attend school is hereby granted to ——— residing at No. ——— street or avenue, now under modified quarantine for whooping-cough, which disease he already has had, and to which he is immune. It is understood that he will occupy a sleeping apartment other than that used by the patient." I am aware that the provincial regulations do not appear to give any medical officer of health authority to issue such permits, but I trust that some amendments will shortly be passed by the provincial board legalizing such procedure. To carry out the law as it at present reads, to the letter, can only result in creating the strongest antagonism and contempt of the

community, and a desire, at all costs, to conceal cases and avoid quarantine, by subterfuge or occasionally with the collusion of the medical man who may be called, or at least have some knowledge of the case. It appears to me desirable that in the interests of the public, and to promote a greater efficiency in protecting the community against infectious disease, that the Provincial Board of Health should be requested to make such changes in the regulations, as are necessary, to bring them more into harmony with the latest developments in public health service and the well established scientific facts as regards the true sources of infection, which have displaced the theories of a generation ago. These changes, if made, would win the respect and coöperation of the public as well as the practising physician, and do away with the antagonism at present existing, which we cannot deny is not unreasonable as regards some of the clauses of the Act, and subjects the unlucky health official who has to administer the Act to a great deal of annoyance and worry.

SENTENCE of one year in jail was passed in December upon a man named John Herbert Cornish, convicted of selling to men liable for military service under the present Act, drugs which he alleged would cause palpitation of the heart.

HOW A MEDICAL HEALTH OFFICER CAN BECOME A COÖPERATIVE SOCIAL FORCE IN RURAL DISTRICTS

BY PETER H. BRYCE, M.A., M.D.

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I IMAGINE that it may not be without value to the younger public health officials and other workers to have a retrospect presented of the evolution of public health organization and methods of work during the thirty-five years since the first Provincial Board of Health in Canada was established in Ontario, in 1882, and which has become the model for most others in Canada. The Ontario Public Health Act of 1884 based upon the Consolidated Public Health of England of 1875, has also become the model upon which the public health acts of the several provinces have been based.

The first public health legislation which I am aware of in Canada was that of 1833, which provided in Upper Canada for the formation of Local Boards of Health by Order-in-Council during epidemics. It was the outcome of the cholera in 1832. In 1849, when under the Baldwin Lafontaine Government, the Municipal Act of the United Provinces of Upper and Lower Canada was passed, by which townships, villages and towns became the units of municipal governments; an Act was also passed providing for a Central Board of Health being appointed by Order-in-Council, to continue during the period fixed in Order, whenever public health necessities demanded. It will be remembered that 1848-1849 were also cholera years. Under this Municipal Act provision was made for health committees being appointed and health by-laws being passed by each council.

Such then was the situation in Canada until 1882 when the first permanent provincial board was formed and until 1884, when the Ontario Public Health Act was passed providing that each municipal council should annually appoint a local board of health

Read at the forty-eighth annual meeting of the Canadian Medical Association, Montreal, June 14th, 1917.

of five members, who would enforce the Public Health Act and health bylaws instead of the municipal councils. However, as these local boards in villages and many townships represented often a population of only a few hundred persons, it is apparent that while the system like that of the municipal councils and local boards of school trustees, is admirable in bringing home to every ratepayer his responsibility as a citizen for the public welfare in matters of health, yet in the event of epidemic outbreaks of disease it has often been necessarily financially onerous on the ratepayer when having to establish quarantines, erect isolation hospitals and pay physicians especially appointed to care for such patients. The same difficulty existed in dealing with the routine enforcement of health laws relating to nuisances, protecting of wells, disposing of refuse and so on, so that in 1894 the Executive Officers Association of Ontario began the discussion of the advisability of enlarging the unit area for a board of health's operations to the extent that whole time officers would devote all their energies to a county or at least to the area for parliamentary representation. This idea has in part been attempted both in Ontario and Quebec by appointing provincial all-time district medical officers; but it has not removed the financial disabilities often placed upon small municipalities, nor provided for the evolution of a larger conception of the true scope of the work which specially trained all-time county health officers would effect in public health and social development.

In a paper on this subject before the American Public Health Association in 1910, I set out the duties which such officers would perform in the following terms:

"To lend dignity to the office and maintain its work in close relationship with the county organization, a County Board of Health; to meet quarterly or more often in emergency, should such exist, to be composed of the Warden or elected head of the county council, *ex officio*, and either the senior or junior county judge, along with the medical officer. Such a board, composed wholly of officials, would add nothing materially to the cost, while questions of health, finance and law would have brought to them the experience of men trained to consider each. The health machinery would, of course, be: (a) The laboratory, required to have a minimum equipment supplied by the county, satisfactory to the Provincial or State Board, located centrally and convenient to the work by both rail and telephone; (b) In those counties where some institution as a county tuberculosis hospital or sanatorium

existed, it would often be found of real practical utility to have the medical officer placed in charge, have the laboratory there, and so centralize and enlarge his work; (c) As the county contains a number of townships, towns and villages, which may have already a sanitary officer, these would become, as in England, automatically the local officers of the county officer, with duties defined under the law, such as reporting daily when necessary, all notices of contagious diseases, and carrying out routine inspection, disinfection and policing; (d) The medical officer would similarly receive directly from physicians, or through the local inspectors, reports of outbreaks of contagious disease, and from all practising veterinarians notice of contagious disease in animals, affecting the public health. (e) The medical officer would similarly be medical inspector of the schools of his district, and would naturally carry out the physical inspection of the school children, as well as the inspection of school buildings and the control of contagious diseases. (f) He would also put in force a systematic supervision, not only of the factories in towns, but especially of the rural factories as of cheese, butter and fruit canning. (g) He would likewise systematize, through the township inspectors, the examination of dairies and the supervision of public milk supplies. (g) He would especially through local veterinarians, discover herds where tuberculosis existed, and would gradually organize a meat inspection service through centralizing the slaughter of meat to be sold to the public."

It will be realized, perhaps, how such a scheme is all the more urgent in view of the decreasing rural populations in the township and village municipalities of the Eastern provinces. Thus the census returns for 1911 give the following results:

| | 1901 | 1911 | Increase |
|----------------------------|-----------|-----------|----------|
| Rural, for all Canada..... | 3,349,516 | 3,924,394 | 17.16% |
| Urban..... | 2,021,799 | 3,280,444 | 62.25% |
| Quebec, rural..... | 992,667 | 1,032,618 | 39,951 |
| | 1901 | 1911 | Decrease |
| New Brunswick, rural..... | 253,835 | 252,342 | 1,493 |
| Nova Scotia, rural..... | 330,191 | 306,210 | 23,981 |
| P. E. Island, rural..... | 88,304 | 78,758 | 9,546 |
| Ontario, rural..... | 1,246,960 | 1,194,785 | 52,184 |

The actual situation as regards the decline of rural population may be understood when it is known that of 400,000 immigrants

who went to Ontario during the census decade, 30 per cent. stated they were farmers or farm laborers, and yet there was a rural loss of 52,184 in addition to the loss of the total natural rural increase, while even in Quebec, the especial home of the French Canadian peasantry, the annual rural increase for the period was only 0.4 instead of 2.15 per cent., the annual average for the whole province.

To further expose the situation I find that in Ontario in 1914 the population was given at 2,749,840, of which the cities and towns over five thousand in population, held 42.1 of the whole, while 57.8, or 1,587,025, were in the smaller towns, villages and townships, which include about eight hundred municipalities. If each had its medical health officer this would mean one for two thousand. Actually there were in 1916, eight hundred and thirty-seven local boards of health, each with a medical health officer. I find that in the province of Quebec there were ninety-eight cities and towns and ten hundred and ninety-three villages and townships, or roughly, two hundred more than in Ontario. As the rural population in Quebec in 1911 was given as 60 per cent. of a population of 2,022,712, we find that with ten hundred and ninety-three municipalities the population of each is just eleven hundred, in each of which, under the Quebec Health Act, must be a "municipal sanitary authority". It must be remembered, however, that this average does not at all represent the actual situation, since in Ontario there are actually two hundred and sixty villages and towns, the minimum of population being five hundred, while in Quebec the population of the villages must, in many cases, be but a fraction of this. The minimum health unit, however, is that of Nova Scotia, where the Act requires that a health committee must be appointed for each municipal polling subdivision.

In order to complete our statistics, I have endeavoured to find out the distribution of churches and clergy. I find that, roughly, in Canada there are eight thousand Protestant clergy and four thousand Roman Catholic; but it is difficult to ascertain accurately their distribution. I find, however, that Quebec has nine hundred and ninety-four Roman Catholic parishes and that their distribution is largely the same as the municipal subdivisions. In Ontario, as in the other older provinces, every village and many rural communities have churches of some denomination and clergymen ministering to their spiritual needs.

As regards the medical services available I find that there are, in round numbers, seven thousand physicians in Canada, distributed, like the clergy, where they are required.

Many other figures would be necessary to make complete the total persons in some way engaged in public health, religious, charitable and social work, such as the total members of boards of health and sanitary inspectors, the number of layworkers in churches and religious orders and the many charity workers in our cities and towns; but each of us can easily form some estimate of what these are. Now, what we have especially to note is, that while we probably have in our rural areas, which constitute say at least 60 per cent. of the population, and that while probably two-thirds of this is actually agricultural and one-third in villages, yet very few of those representing in any way the educational or professional or social worker persons in these communities reside actually in the townships.

Such then is the constitution of municipal and social forces of the rural communities of Canada, varying but little in the newer provinces except in so far as the population is more sparse and more widely distributed. Indeed these very facts are making the need for newer methods in social evolution there so evident that in Manitoba, district nurses have already begun the work of inspection in schools, and following into their homes those children whose physical and mental needs call for attention. In Saskatchewan already twenty district hospitals have been constructed and it is expected that within two years as many more will have been established at convenient centres, to which physicians will send their patients for treatment under a regular nursing staff, who will also gradually undertake social work by district visiting; while, in addition to this necessary work, Alberta is developing social centres by having erected a "Home House" for the several school teachers of adjoining sections, added to which will be the district social nurse.

Reverting to the old East, it is apparent that for many years the loss of many of the young people of its rural population has become in many districts, little less than a war tragedy. It is as if an extended war conscription had robbed the countryside of 10 per cent. of its young adolescent population in ten years, since in some counties of Ontario this loss has been at least 1 per cent. per year. Closely examined, this condition is both an effect and cause of a social disintegration and destruction of an old time rural life, rich in numbers, in energy, in hope and in action. We have no time to enter upon an explanation of its causes; but I propose to enquire whether its reconstruction cannot be brought about by the coöperation of forces already present. It is abundantly

plain that what every large town and city have to-day developed in abundance of municipal, religious, educational and social organization are almost everywhere lacking in our rural municipalities as centres for unifying and socializing the people. As a basis for rural progress there must be a recognition of the fact that the economic life of this rural population must be adequate in return for the energy exerted and must develop social amenities sufficient to attract and retain a contented rural population. It is apparent that education of an adequate scientific character must be supplied to do this. When it is known that the old village or countryside school, once with its fifty or seventy-five children is to-day often reduced to ten or twenty, it is evident that a young school miss, presiding over a few children of different ages and paid a salary wholly inadequate to encourage permanence in the teaching profession, is in no way going to do more than play with the problem of inculcating those scientific truths, which necessarily form the basis of the permanent upbuilding of the child mind into an interested and progressive agriculturist. In no other single occupation is it pretended to-day that anything but failure can result from the neglect to make use of the most advanced scientific methods.

The war has exposed the real situation as applied to production, resulting from the lack of instruction in science, of the British nation at large, and when it is understood that not more than 5 per cent. of children reach the secondary schools, the full meaning of this can be appreciated. But this work of interesting the child mind in the phenomena of nature around him through scientific teaching must be begun from the earliest school years. Not only so, but extension of methods must be progressive as his mind grows, and school gardens, orchards, greenhouses, dairies and laboratories must be the means whereby the children are not only taught, but the community also brought together. In the good old days the transepts of St. Paul's Church and the churchyard in London were highways and places of meeting and trade for the people, while nothing seems to me more dreary and sad than to see the two isolated buildings along the country roads of our provinces often without grounds or any garden and, except on Sundays, without any sign of human interest attaching either to school or church.

Now what is needed is that the countryside become socialized. In our day of rapid transport we have only the semblance in many cases, of the old-time mediæval countryside open fields, where corn land and meadow and pasture around the villages were dis-

tributed yearly by lot and worked and used in common. How is this socializing to take place? In brief it must be by evolving a new sense of the dignity and national importance of agriculture and rural life. Who are to be its apostles? Unquestionably in addition to the coöperating farmers themselves it must be the clergy, the physicians and teachers. Even though often inexperienced and untaught in these duties, they are still the people's leaders. It is, however, interesting to note that in Quebec many of the clergy in their "Community Houses" are amongst the leaders both in the practice and theory of agriculture; while no doubt many cases exist where the rural clergy interest themselves directly in the practical problems of their people. But this has not been the practice in other communities, and too often the clergymen never gets close even to the public school pupils, nor meets his people except on Sunday, and then in his capacity as their spiritual adviser. The country doctor often comes much nearer to the interests of his community and may at times become actually a leader in practical rural affairs. He would become still more so if, as an all time medical health officer, he could with an equipped laboratory come into close practical relations with this farm life. For instance, the counties are establishing gradually, at least in Ontario, sanatoria for tuberculosis. Here might well be the starting point. Every county has still five to ten such cases per thousand of population, and through the practising physicians the county officer would come to deal not only with tuberculosis but also other problems. The outbreaks of acute contagions in cattle would at once be diagnosed through laboratory tests; the movements of the officer through his district would bring early to his notice fungous and insect diseases of plants, while his practical oversight of the surroundings of cheese factories and creameries would be but a step to his investigating and suggesting improvements in the methods of cheese making and butter making from the bacteriological standpoint. With the careful rural taxpayer I know of nothing which would so soon gain his approval of a progressive public health organization as the practical interest which a trained bacteriologist would take in actual rural production. When a great American industry can afford to set apart half a million annually for investigations in science, it must surely appear essential in an industry like agriculture, whose very future depends upon the application of the knowledge gained in every field of science that organized methods for this purpose be developed. Already these have begun through the appointment of agricultural demonstrators in some of our counties and in the

degree that such are multiplied we have every reason to feel assured that community work in our rural districts will increase. I have suggested that this work demands the closest coöperation of clergy, teachers and physicians, with the people of our rural communities, and I can conceive of nothing so likely to make this possible as the unifying of old school sections into a central or consolidated school, where a number of teachers with a trained science principal and enough buildings and equipment, would create a true educational and social centre for the people. To illustrate how the public sense is still little developed with regard to the health phase of this socializing process I shall give a statement regarding the local boards of health in six of the ten health districts of the province of Quebec, supplied through the kindness of Dr. Pelletier, secretary of the Superior Board of Health and of Dr. McCullough of the Provincial Board of Ontario, who informs me that each of the eight hundred and thirty-seven boards of health has its medical officer. In the Montreal Health District there are seventy-nine parishes, eighteen villages, thirty-two towns, six cities.

Of the important municipalities Montreal spends \$250,000 in health work and employs twenty-seven medical men under a chief medical officer, while the salaries run from \$5,000 to \$1,500. Lachine spends \$15,000, and employs three medical officers, with salaries from \$1,400 to \$450. Westmount pays \$1,000 to its medical officer; Maisonneuve \$2,000 and Verdun \$1,000.

| | No. of Municipalities | Boards of Health | Medical Officers | Sanitary Inspectors |
|---|--------------------------|---------------------|---------------------|------------------------|
| Montreal District: | | | | |
| Urban..... | 38 | 20 | 25 | 19 |
| Rural..... | 97 | 59 | 49 | 42 |
| Three Rivers: | | | | |
| Urban..... | 9 | 9 | 7 | 2 |
| Rural..... | 133 | 133 | 66 | 67 |
| No annual salary to medical health officer except in Three Rivers. | | | | |
| Quebec: | | | | |
| Urban..... | 22 | 22 | 14 | 7 |
| Rural..... | 137 | 106 | 27 | 111 |

Quebec City pays \$2,000 and \$1,800.

Levis pays \$400.

Lauzon pays \$300.

Most medical officers paid when called upon.

Fraserville:

| | | | | |
|------------|----|----|----|----|
| Urban..... | 4 | 4 | 3 | 1 |
| Rural..... | 92 | 77 | 20 | 72 |

Rimouski has chief of police as its sanitary officer, paid as policeman.

St. Hyacinth:

| | | | | |
|------------|-----|-----|---|-----|
| Urban..... | 8 | 8 | 1 | 6 |
| Rural..... | 111 | 111 | 2 | 110 |

No medical officer properly so called at all.

Hull:

| | | | | |
|------------|-----|----|----|----|
| Urban..... | 3 | 2 | 1 | 2 |
| Rural..... | 130 | 88 | 52 | 79 |

It will be seen from these figures that of the eleven hundred municipalities in Quebec only two hundred and sixty-six have medical officers regularly appointed and that most of these are paid on call by the local board of health and do not receive regular salaries. In Ontario it is the common practice to pay a small salary to the medical officer and to pay him for extra services should the emergency demand it.

Now perhaps it may be said with such an attitude toward matters of public health that any hope must be small of obtaining hearty coöperation of the several social forces which I have mentioned. But I insist that the problem is not so much that of the instrument as of getting any local community to appreciate the need for coöperation toward social ends. Rural inertia, as inertia everywhere, is due to a lack of knowledge or appreciation of the desirability of the ends sought; hence methods specially suited to this purpose must be found. In the old days special agents as preachers and teachers engaged in missions and crusades; but to-day such may be accomplished through the marvellous discoveries of science, may be spread to a thousand places, which the missionary has not time to reach, by means of the press and the cinematograph. Pictures from foreign lands, especially all phases of socializing work in town or country, of rural scenes, and agricultural methods, are to-day being utilized in ever increasing extent to teach through the eye what has not been possible so readily through the ear. If such show a tractor with one man ploughing five furrows at once, it may also illustrate social gatherings, whereat exhibits of agricultural products are intimately associated with pictures and talks telling the simple truths of science upon which actual production is based. But this will be but the beginning since

moving pictures, with statistics telling the relations between the cost of production, the cost of transport, the cost of selling and what the consumer pays will arouse in the rural mind a sense of his relation to the world of affairs outside and help him to appreciate the part which agricultural life should play in the country as a whole.

But I have said enough to indicate what I wish to direct attention to: viz., the importance of arousing in the several educative agencies of our rural communities a consciousness of the need for their adopting an aggressive attitude toward the social life of their communities, and shall leave the matter to be further discussed by those perhaps more competent.

COLONEL G. E. BUSHNEL, of the Surgeon-General's Department of the United States Army, recently stated that less than one per cent of the 800,000 men examined for the Army had been found to be tuberculous.

Case Reports

DEVELOPMENT OF HÆMORRHAGIC DISEASE FOLLOWING INJURY TO THE LIVER

By E. M. VON EBERTS

Surgeon to the Montreal General Hospital

THE following is a brief report of a case of hæmorrhagic disease following injury to the liver.

Mme. V. M., aged twenty-three years, was admitted to the Montreal General Hospital at 6.30 p.m. on August 23rd, 1917. She was said to have been injured in a tramway accident at 3.40 p.m. on the same day.

The patient was in a state of shock, and complained of pain in the lower part of the abdomen and in the right side of the chest. The temperature was 98.3-5°; the pulse, 120. There were contusions on the right side of the chest in the lower axillary zone, with signs of fracture of the fifth and sixth ribs near their angles. The abdomen was tender over the lower half. The gravid uterus extended to within a finger's breadth of the umbilicus. There was no vaginal discharge. The patient was given a quarter of a grain of morphine hypodermically, and the right side of the thorax was strapped with adhesive.

During the next three days her general condition improved rapidly. On August 27th, however, she complained of pain in the right side of the chest. On examination there was found dulness at the right base, with nasal voice sounds—signs which were attributed to a hæmorrhagic effusion. On August 29th—six days after admission—the patient became jaundiced. The area of dulness in the chest was found to have extended, and on rectal examination dark blood was found intimately mixed with faecal matter. As the daily bowel movements had hitherto been free from blood, its presence at this time could not be accounted for. The theory was tentatively advanced that the blood had entered the bowel through the hepatic ducts, and that the bleeding had occurred within the liver as a result of injury associated with the fracture of the ribs.

On August 31st, 1,000 c.c. of liquid blood was aspirated from the right pleural cavity. From September 1st to the 11th, the patient made satisfactory progress, the jaundice largely subsiding. The pulse fell from 130 to 98, and no further blood appeared in the stools. On September 11th, however, the pulse rose suddenly to 120, with the development of marked pallor, restlessness, and sweating. On the 12th, the patient vomited 700 c.c. of blood, preceded by the regurgitation of curdled milk; and blood also reappeared in the stool. Her condition became very precarious. She complained constantly of pain across the upper zone of the abdomen.

On September 20th, at 6 p.m., she was seized with a severe pain in the epigastrium, and became weak and faint. Blood was vomited, and later altered blood was passed in the stool. A direct transfusion of 250 c.c. was done. On September 22nd, there was a slight improvement. On the 24th, there was again blood in the stool. On the 26th, there was severe epigastric pain, with nausea, followed by the passage of a bloody stool. By September 29th, there was some improvement, but the stools remained bloody. The patient was given an injection of 20 c.c. of horse serum.

On September 30th, the blood count was 1,200,000 red cells; hæmoglobin 22 per cent. On October 1st, the pulse was very weak and rapid. The blood count was 1,400,000 red cells; hæmoglobin 23 per cent. A transfusion of 400 c.c. was followed by mild anaphylactic signs, namely, œdema of the face and eyelids. On October 3rd, the blood count was 2,700,000 red cells. On October 4th, 2,240,000 red cells; hæmoglobin, 30 per cent. At 8.30 a.m. a third transfusion of 425 c.c., was performed. At 4.30 p.m. the patient complained of severe pain in the right lower axilla. The pulse became barely palpable. She vomited 250 c.c. of blood at 11 p.m.

On October 5th, at 9 a.m., laparotomy was performed. A moderate amount of thin fluid blood was found in the abdominal cavity. There were adhesions between the right lobe of the liver and the anterior parietes. Wherever recent adhesions were separated, there was oozing of thin blood, which showed no tendency to coagulate. The gall bladder was tremendously distended, and on being opened was found to contain a mass of blood clot. There was no evidence of ulcer of the stomach or duodenum; these findings confirming the original hypothesis, that the source of the bleeding was the liver, and that the blood had found its way into the bowel through the hepatic ducts.

The patient died at 4 p.m. on October 6th.

Autopsy was performed on the same evening, and showed, in addition to fracture of the fourth, fifth, sixth, seventh, and eighth ribs near their angles, with laceration of the parietal pleura, and the presence of 600 c.c. of blood-stained fluid in the right pleural cavity, an extensive laceration of the right lobe of the liver, communicating in its depths with the right main inter-hepatic bile passage by an opening 5 cm. in length. Careful study failed to reveal injured blood vessels of any size in the zone of laceration. The extra-hepatic passages were intact.

The striking clinical features of the case are:

1. The occurrence of a large quantity of blood in the stool and vomitus, as a result of injury to the liver.
2. The appearance of this hæmorrhage six days after the original injury.
3. The recurrence of blood in the stool from the same source.
4. The effect of transfusion.
5. The clinical and post mortem evidence of the extreme fluidity of the blood, suggesting the development of true hæmorrhagic disease.

It has been conclusively demonstrated experimentally that prothrombin production is very greatly lessened in injury of the liver, whether the injury be due to the destructive action of a poison, such as chloroform, or to direct traumatism, as for example the deep cauterization of the liver. The well-known experiments of Pawlov and Bohr, which demonstrated the absence of coagulation in animals in which the abdominal circulation had been isolated, as well as the work of Doyen and his pupils upon the effects of injuries to the parenchyma of the liver, leave little doubt that the causes of prothrombin-antithrombin disturbances leading to the development of hæmorrhagic disease are to be traced to the liver itself. I am inclined to believe that the case presented is one in which hæmorrhagic disease developed as the result of extensive injury to the liver. The beneficial effects of transfusion would also lend support to Whipple's contention that, in cases of true hæmorrhagic disease, the one hope of benefit is in the practice of direct transfusion.

ANTHRAX OF FACE

By CHAS. K. P. HENRY, M.D.

AND

WILLIAM J. SCOTT, M.D.

IN this section of Canada, anthrax, or malignant pustule, in man is sufficiently uncommon, and its early recognition is so imperative, that I feel justified in presenting this case to the society.

Mr. M. C., aged forty-one years, was a skilled workman in Lyall's munition plant, where he acted as inspector of copper linings of shells. He was first seen by me in the early morning of July 26th, 1917, in consultation. The local condition began as a "blind boil with a yellow centre" over the left mandible on July 19th. At this time there was but little swelling of the face. On the following day he was feverish and was home from work. The area involved was larger, more swollen, reddened and there was surrounding cellulitis. There was considerable swelling beneath the jaw, and under hot fomentations this swelling decreased. On September 21st, he was quite ill. The preceding day the local area was "lanced and injected". On this day he had a rigor and there were two such later.

During the 24th and 25th he had considerable abdominal pain and some vomiting. This epigastric pain persisted and was constantly present and was his main complaint during the last two days of his illness.

On September 26th, at 8 a.m., when seen by me he was moribund. He had had a collapse during the preceding night and was pulseless and showed marked cyanosis. He was short of breath and was complaining of epigastric distress. Energetic stimulation was given and he was admitted to the Montreal General Hospital at once. On the left cheek over the mandible was a typical lesion of anthrax. This was about the size of a fifty cent piece and was raised above the surrounding skin. There was no cellulitis or swelling about it and no glandular enlargement was

Read at a regular meeting of the Montreal Medico-Chirurgical Society, Nov. 2nd, 1917.

made out. The centre of the lesion was depressed, dry, necrotic, and just external to this were grouped in a circle areas of black necrotic looking tissue. Externally again the edges of the lesion were more raised, bright red in colour and showed a scallop-like appearance similar to a cock's comb. The growth was moveable on the underlying tissues and was neither painful nor tender. There was little swelling of the face tissues. His arms were cyanosed to the elbows and his extremities were cold. His intelligence was keen and he was conscious to within a moment or so of death, which occurred at 2 p.m. the same day.

After his admission to the hospital salines were given and all forms of stimulation employed. In addition 10 c.c. of anthrax serum was injected into a vein at the left elbow, and 10 c.c. given subcutaneously. This vein gave thick, very slowly flowing blood and it was apparent that there was hardly any circulation in the peripheral vessels.

The photograph shows the lesion as it was two hours before death.

The abdomen was full, distended, tender to pressure, and he constantly complained of pain here.

Direct smears taken from the surface of the growth showed numerous anthrax bacilli.

The source of infection was not found. No other cases occurred in the munition plant and none at home. He owned a horse which had been attended to by him for a sore leg and a veterinary inspection was made of this animal, and the inspector reported there was no evidence of anthrax. No cultures were taken, as far as I could ascertain, as the horse was well a few days after the patient's death.

In the last few years a couple of cases among soldiers have occurred in the Montreal General Hospital, with recovery.

This patient developed septicæmia. The local condition was undoubtedly subsiding during the last two days of life.

Early excision with serum therapy seems to be the best treatment.

The bacteriological and pathological findings were elaborated in the Pathological Department of the Montreal General Hospital.

Post-mortem findings. The focus of infection, as described by the author during life, showed little change at autopsy.

In explanation of the gastro-intestinal symptoms, we found a text-book picture of mycosis intestinalis. The lesions were fungus like, firm, dark red or grey in colour, with occasional areas of

necrosis. They were found throughout the small bowel, at intervals of about six inches, and projected into the lumen. The largest was about the size of a hen's egg, the smallest, one c.m. in diameter. In the pyloric portion of the stomach, we found three or four similar lesions, and a few were present in the great bowel.

The spleen was not markedly enlarged, although it was of the septic type, soft, dark red, and weighed two hundred grams.

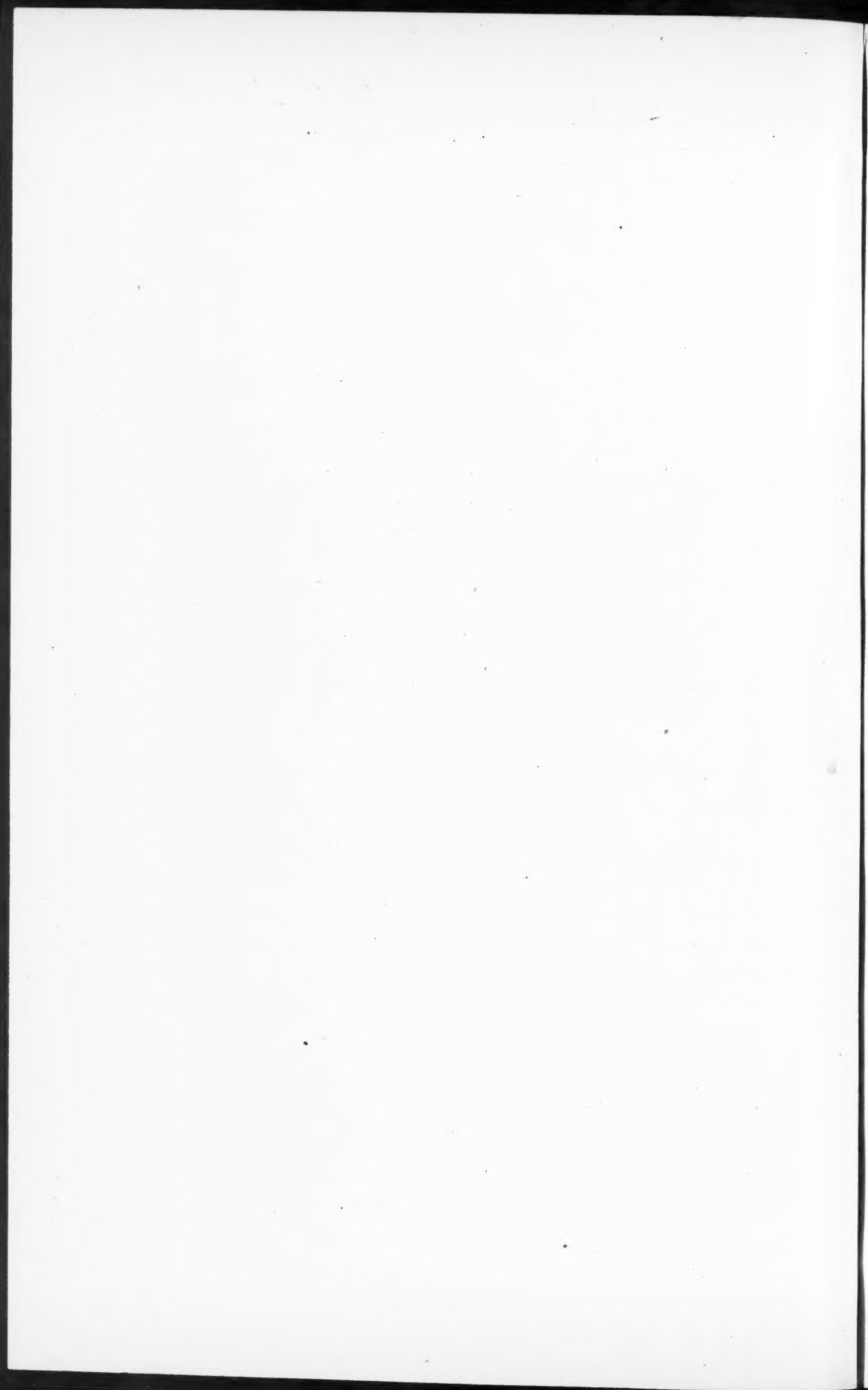
Cultures were taken from the heart's blood, spleen, and from one of the lesions in the bowel. All showed a gram positive rod with the morphological and cultural characteristics of *B. anthracis*, and agreeing in all respects with the organism which was isolated from the pustule and blood culture taken upon admission to the Montreal General Hospital.

Sections of tissue from the intestinal and stomach lesions showed great numbers of short plump rods with straight cut ends, irregularly distributed and occurring in short chains or singly. The most striking feature in the inflammatory reaction is the intense congestion of the vessels, with smaller and larger hæmorrhages in places. The cellular exudation showed a decided predominance of polymorphonuclear leucocytes. The sections from the pustule, on the other hand, showed few bacteria, and little œdema. The exudation of serum in the gastro-intestinal lesions was a marked feature.

The patient had malignant pustule, with mycosis intestinalis and anthrax septicæmia, the organisms being demonstrated in the circulation by blood culture taken the day of death and confirmed at post mortem, but whether the organisms reached the gastro-intestinal tract from the blood stream, or by way of the mouth, producing the remarkable picture above described, is a question. Clinically the malignant pustule showed marked improvement, and histologically, the inflammatory process was decidedly subsiding, so that we feel the mycosis intestinalis was a result of the organisms, or spores, being carried into the mouth from contaminated fingers.

ASSOCIATION JOURNAL





Editorial

DR. THEODORE C. JANEWAY

IT is a tragic, though significant event, that America's foremost physician should have been among the first of his countrymen to succumb to the hardships of the great war.

The promptitude and efficiency with which the American medical profession responded to their country's need was one of the most striking features of the mobilization, while the many units that have now long done duty in France are abundant evidence of their success.

On the outbreak of war, Dr. Janeway's offer of his services was readily accepted, and though eager for work in France, he took on his duty in Washington uncomplainingly. There, as advisor on cardiovascular conditions and hospital equipment, at the Surgeon-General's office, he devoted himself with an energy that was his characteristic, and with untiring zeal that helped to impair his vitality, ultimately contributing to his fatal illness. He died of lobar pneumonia on December 27th, 1917, after six days, and at the early age of forty-six years.

His career was a brilliant one, marvellously rich in achievement—a hectic effort to follow an ideal of life—full of study, industry, zeal and stimulation, and yet with a simplicity devoid of any sordid interest.

A graduate in the Yale Scientific School in 1892, he followed the medical course at the College of Physicians and Surgeons, New York, taking his medical degree in 1895. An instructor in medical diagnosis in New York University for the following ten years, he next became associate, and finally professor in his own medical school in 1909, till he was called to Baltimore in 1914, as Professor of Medicine and

Chief of Staff in the Johns Hopkins Hospital and Medical School.

Throughout these promotions his interests were wholly in medical research—on its pathological and chemical sides—for he was trained in laboratory methods as few men of his time.

His father's mantle fell easily on the son's shoulders, for already in his declining years of activity the older diagnostician had conferred on him an inheritance of knowledge and wisdom that enabled his son to stand among the ablest of American clinicians.

The younger Janeway had acquired proficiency based on arduous work, long laboratory training and a vast experience, made all the richer through keen powers of observation, a marvellous memory and receptivity which enabled him to garner the benefit of an intimate association with his father.

While not a prolific writer, Dr. Janeway contributed valuable works on scientific medicine. He was among the pioneers in practical application of blood pressure estimations, and as a student of metabolism he organized a staff of workers whose literature on Diabetes, Gout, and Nephritis is of the highest importance.

He wrote much on Cardiovascular disease and Therapeutics, and was an authority second to none on the subject of Nephritis.

It was greatly due to his influence that chemical research in the clinics was systematized and organized, and that the study of metabolism became a feature of clinical therapeutics in this country. Thanks largely to his fostering influence the large metabolism clinic at the Royal Victoria Hospital at Montréal was established and completed, and it is a pleasant memory to all concerned to recall his enthusiasm at its equipment and organization.

Particularly gifted, too, as a teacher, his lectures were masterpieces of lucidity and careful preparation, so much so, that individually they might serve as monographs of the subject dealt with.

The question is sometimes asked, "By what is a man remembered after he has gone?" The answer is, "By the service he has rendered, and by the love he has expended." How peculiarly applicable is this answer to him whose loss we all mourn! For, his service lay, not in the publication of treatises on clinical medicine, and not in the beneficent practice which he so skilfully carried on, great and invaluable as these all were—but still more in the inspiration that he was to the whole medical profession, in the ideals of intellectual accuracy and integrity to which he dedicated his life, and which remain as a perpetual inheritance, enduring in influence. As a result he has made his name a synonym in the medical world for diagnostic thoroughness, and truthful interpretation.

Who of us can forget him, who does not feel a new reason for fighting with fresh consecration the battle of progressive medicine, now that this brave and valiant soldier in the cause has laid down his arms?

REPORTING OF ACCIDENTS FROM LOCAL ANÆSTHETICS

A LETTER bearing this heading from the Council of Pharmacy and Chemistry of the American Medical Association is published in this issue. In the experience of many large hospitals where newer local anæsthetics as novocain, anocain, stovain, tropococain, are used extensively by skilful anæsthetists such accidents are practically nil. The fact that such a responsible body as the Council of Pharmacy and Chemistry feels the necessity of issuing a circular on the subject shows, however, that accidents do occur. Since this is the case it is certainly most important that all such should be reported with full details as to dosage, the condition of the patient, and mode of administration. In this way serious errors in the handling of these drugs may be corrected.

WAR NEPHRITIS

AMONG the various conditions that have arisen during the present war engaging the attention of the medical mind, perhaps none has excited deeper or more widespread interest than trench nephritis. Previous to the conflagration of 1914 the kidney both in health and in disease was being investigated by so many representative men of all schools from the standpoint of function and morbid changes, that when the opportunity offered by the incidence of disease in this war there was no lack of trained men to investigate carefully these interesting nephritic cases. Partly on account of the frequency of this affection which must be regarded as in excess of nephritis in civil life and partly on account of the type of the disease seen during the present war, trench or war nephritis has won its name.

Just what percentage of the total number of those ill, or of those in the field, is invalidated on account of this particular type of kidney disease is most difficult to estimate, yet reports of so many groups are constantly coming forward both from the British Expeditionary forces and the French forces as well as from the German and Austrian armies, that it may be estimated with certainty that the number of those already ill has reached thousands. From all available statistics, after a careful elimination of certain cases of chronic renal disease, as well of those cases which have come to be known as "fatigue albuminuria", it appears there yet remains so large a number of men presenting the symptom complex of renal disease, that nephritis in this war is unprecedented in military history with but one exception—that which occurred in the American civil war when 14,000 of the northern armies were invalidated.

The first cases were recognized in the British Expeditionary forces in the spring of 1915 and later in the French and other armies of the north, while numbers of cases were reported

among the Mediterranean forces. Albuminuria, casts, and dropsy afford the evidence for a clinical diagnosis of nephritis under any circumstances. There is no lack of such evidence in war nephritis yet these with certain other features show considerable departure from ordinary nephritis or nephritis seen in civil life. Bradford points out that there are two outstanding features of war nephritis—the rapid subsidence of dropsy and the remarkably low mortality considering the severity of the uræmic attacks.

Those who have regarded a large number of these cases describe dropsy of brief duration, usually clearing up in one or two weeks, dyspnoea in the early stages of the disease, even at the onset, bronchitis of such frequency as to render it doubtful whether “it should be considered as a complication or as one of the normal phenomena of the disease”. Fever is early and often of a relapsing type. The urine in all cases contained albumin and often blood. Albumin disappeared in a few weeks—in some after fourteen weeks (Brown) or in others only after five or six months from the onset. Brown points out that the urine, while the disease was acute, in certain instances was markedly increased. He failed to see “the extreme reduction in quantity such as is common in civil practice”. Although a tendency to relapse has been remarked in a number of cases, yet the prognosis is favourable in the majority. The mortality of 0·3 or 0·4 per cent., according to Bradford’s estimate, is regarded as rather too low by others who report 2 per cent. or 3·5 per cent. of deaths. Time must decide these both points, for prognosis and mortality rate require reports on thousands of cases over several years. While the cases examined post mortem afforded the evidence that pathological changes are those best described as an acute glomerulo-nephritis or a glomerulo-tubular nephritis—yet the causative agent is still a matter of much speculation.

From the fact that the winter of 1914 and 1915 [was] cold and not a little privation was experienced, the outbreak of the disease in the early spring was attributed to exposure to cold.

The persistence of the disease into the summer, the illness of many of the troops not so exposed, the few cases (three) among the Indian troops, quite unaccustomed to that climate, are urged against this view. Again syphilis and typhoid inoculations individually have been advanced by way of explanation. Diet, too rich in proteins, metallic poisons such as lead and tin, have been considered among the possible causes. An unusual scarlatinal infection is also in the list already quite long, of factors accounting for the wide-spread incidence of nephritis.

Those who maintain the theory of an infective origin seem to hold the strongest ground. Yet, notwithstanding many cultures and microscopic examinations, no organism has been found. The *spread* of the disease from British Expeditionary forces to French forces, the increase of the number of cases, and again the decline in the number which is being at present observed, are features strongly resembling epidemics, already demonstrated as due to infection. Experimental work done with the urine of nephritic subjects by Dr. Mackenzie Wallis shows that an illness may be induced in rabbits and monkeys eight days after injecting them, thus excluding a toxic cause, and suggesting a "filter-passer" or an ultramicroscopic agent, for if the urine had been previously heated to 55°C., no illness occurred.

Dr. Wallis suggests that cold and exposure may play a part as predisposing to the disease, but that the degree of affection of the glomeruli, the chemical tests, and the post mortem evidence point to an infective origin.

NEW YEAR'S HONOURS TO SIR ANDREW MACPHAIL AND OTHER CANADIANS

THE list of New Year's honours contains the name of Major Andrew Macphail, C.A.M.C., editor of the JOURNAL, upon whom the distinction of Knight Bachelor has been conferred by His Majesty the King for services at the front and in recognition of his distinguished literary achievements along scientific and patriotic lines.

Major Sir Andrew Macphail was born at Orwell, Prince Edward Island, in 1864. He is a graduate of McGill University and was appointed professor of the history of medicine in that university in 1906. He is a member of the Royal College of Surgeons and a Fellow of the Royal Society of Canada; author of several books, plays, etc., and editor of the *University Magazine* and of this JOURNAL. although for almost two years now he has been overseas. In April, 1916, Sir Andrew offered his services for duty overseas for the duration of the war and was given a commission as Lieutenant in the Canadian Army Medical Corps and attached to the staff of No. 6 Field Ambulance, under the command of the late Lieutenant-Colonel R. P. Campbell, who met his death attending to the wounded in 1916.

The whole of 1916 and part of 1917 was spent by Sir Andrew Macphail on the battlefields of Flanders and France, including that of Vimy Ridge. He was promoted to the rank of captain on the field, and in June, 1917, was given his majority and attached to Canadian Headquarters in London. The same month he was chosen to deliver the Cavendish Lecture before the London Medico-Chirurgical Society. The only other Canadian who has enjoyed this distinction is Sir William Osler who was Cavendish Lecturer in 1899.

In addition the list contains the names of the following members of the Canadian Army Medical Corps:

Companion of the Bath: Colonel Frederick Gault Finley, of Montreal, chief medical adviser at Canadian Headquarters, London.

Commander of St. Michael and St. George: Colonels Kenneth Cameron, of Montreal; Wallace A. Scott, of Toronto; George S. Rennie, of Hamilton; and Walter Langmuir Watt, of Winnipeg. Lieutenant-Colonel John Andrew Amyot, professor of hygiene in the University of Toronto.

Distinguished Service Order: Lieutenant-Colonel (temporary Colonel) Charles A. Peters of Montreal; Lieutenant-Colonels James E. Davey of Hamilton; Charles H. Dickson of Springfield, Nova Scotia; James Fraser of Walkerton, Ontario; Thomas McC. Leask of Moose Jaw; Thomas J. F. Murphy of St. Jean d'Iberville, Quebec. Major (temporary Lieutenant-Colonel) Clifford Hamilton Reason of London, Ontario; Majors (acting Lieutenant-Colonels) Alfred T. Bazin of Montreal, Percy G. Bell of Winnipeg, James J. Fraser of Walkerton, Ontario; and Major George S. Mothersill, of Winnipeg. The decoration has also been conferred upon Captain Gordon McLarty Royal, who was formerly with the C.A.M.C.

The Royal Red Cross of the First Class has been conferred upon Matrons Myra Goodeve, Janet McDonald, Helen Shearer, Jean Urquhart, and Nella Wilson.

The Royal Red Cross of the Second Class has been conferred upon Nursing Sisters Annie Baillie, Elizabeth Best, Mabel Bruce, Isabel Connor, Winnifred Fray, Margaret Galbraith, Sarah Heaney, Elizabeth Martin, Margaret McCort, Annie Stirling, and Ethel Upton.

COLONEL H. S. BIRKETT, C.B., M.D., has been elected Vice-President of the Oto-logical Section of the Royal Society of Medicine. This additional honour was conferred upon him prior to his leaving the overseas service which he has conducted with so much credit to himself and the Canadian Army Medical Service.

A NUMBER of important questions were discussed at the Social Welfare Congress held in Winnipeg on November 22nd, 23rd, and 24th inst. Keen interest was manifested in the subjects under discussion and the addresses given were heard with the greatest attention. The speakers all emphasized the importance of preventive measures as the most effective means of improving social conditions. Dr. T. A. Mathers, who in the absence of Dr. Stewart spoke on Tuberculosis, said that children, who were particularly susceptible to that disease, should be removed from an environment in which they were exposed to infection; adults were not so susceptible but overstrain, especially when coupled with underfeeding, frequently caused a latent infection that had probably been contracted in childhood to break out into active disease; advanced cases of tuberculosis should be quarantined, routine examination of adults as well as school children should be instituted, and better public health laws secured; and finally, were poverty removed, tuberculosis would soon disappear. Dr. Gordon Bell and Dr. Fraser, speaking on venereal diseases, referred to the importance of accurate knowledge of facts concerning these diseases and of organization to deal with the facts when known. There should be registration, private but not necessarily secret, of cases of such disease and arrangements should be made for the quarantine of those actively infective. The speakers also advocated the establishment of clinics for the treatment of patients, which in necessitous cases might be given free of cost.

Mr. A. M. MacDonald, superintendent of Neglected Children for the Province of Alberta, referred to the difficulty of providing proper care for children born out of wedlock. He thought that better results would be obtained if such children were placed in suitable foster homes whenever possible rather than in public institutions. They should not be left with the mother unless she was anxious to keep them. The name of the father should be demanded in

registration and the child, if need be, should take the name of the father and be supported by him.

Mr. R. B. Maxwell, president of the Great War Veterans Association, and Sergeant Downs, the vice-president, both spoke of the need for the utmost consideration in the public attitude towards the returned soldier. The greatest difficulty was experienced by the men upon their return in settling down to routine work; they were restless and many of them when they began to work were still suffering from the effects of the experiences they had been through; moreover the strict discipline of military life had unfitted them to think and act for themselves and it naturally took them a little time to accommodate themselves to the return to civilian life.

In a discussion of the food problem, Mr. E. McGrath, secretary of the Bureau of Labour, stated that whereas since the beginning of the war the price of groceries had increased 63 per cent. and the cost of meat 34 per cent., in the case of over five thousand men representing twelve trades the average increase in wages had been only 14 per cent.

THE number of Canadian soldiers who have been blinded in the war up to the present time is fortunately small, about thirty-four altogether. The greatest interest has been shown by the general public in the welfare of these men, and, moreover, application has been made to the government by several institutions for the blind for permission to care for and train blinded soldiers in this country instead of in England. The training given at St. Dunstan's Hostel in London, however, is so satisfactory and has proved so beneficial from every point of view that it has not been thought advisable to establish in Canada a training centre for soldiers who have become blind, and the men themselves have expressed their complete satisfaction with the present arrangement.

A report on the work done at St. Dunstan's has been prepared by Colonel Murray MacLaren, C.M.G., and has been made public in order that Canadians should understand that soldiers who have been so unfortunate as to lose their sight receive every care and the best possible training. After a full investigation of the work of the institution, Colonel MacLaren states that St. Dunstan's Hostel is an admirably organized and thoroughly well conducted establishment. Regular institutional training is carefully avoided and the word institution is not used, every effort being made to introduce a cheerful and hopeful spirit into the lives of the men and to encourage them to regard themselves as normal people who cannot see. Two officers and eight Canadian soldiers have already passed out of the hostel and one officer and twenty-three soldiers are now undergoing training there. No obligation to remain at the hostel is imposed upon Canadians, who, as soon as their wounds are healed, are sent there and given the opportunity of deciding for themselves whether or not they will remain. The course of training extends over a period of from eight to twelve months, varying somewhat according to the nature of the occupation selected and the adaptability of the pupil. The training is supervised by carefully chosen and capable instructors. The facilities for training are excellent and the aim is to make the men thoroughly proficient in their occupations. Before the course is finished the weak points which have been carefully noted are corrected and the man only leaves the hostel when he has become thoroughly proficient. Those trained in massage are required to pass the examination of the Incorporated Society of Trained Masseurs. The principal occupations taught are massage, secretarial work including typewriting and shorthand, telephone operating, cobbling, mat-making, basket-making, joinery, and poultry-farming, and every man receives instruction in Braille, typewriting and netting. Colonel MacLaren quotes Sir Arthur Pearson, the head of St. Dunstan's, as saying that the majority of the men who

have been trained there have been able to obtain more remunerative work than they had before they enlisted.

AMONG the soldiers who have been treated in the institutions established by the Military Hospitals Commission from the beginning of the war up to September 30th, 1917, there have been 2,364 cases of tuberculosis, 903 from the various camps in this country and 1,561 from overseas. It is estimated that in addition to these, about 540 cases were still in England at that time so that the total number of tuberculous soldiers in the Canadian Expeditionary Force reported up to the end of September was approximately 2,904. Up to the present eight sanatoria have been established by the Military Hospitals Commission, and a large proportion of the beds in several other sanatoria are reserved for military patients.

AN order-in-council has been passed by the Alberta Government which provides for the transference of matters connected with public health from the department of agriculture to that of the provincial secretary. The various branches of public health work will thus be coördinated and, as a step towards the establishment of a separate department of public health, the new arrangement will be received with satisfaction by the profession of Alberta. Matters concerning the establishment of rural hospitals will also be placed under the direction of the Provincial Secretary, instead of being, as formerly, in the Department of Municipal Affairs, and, therefore, the Board of Health, the Department of Vital Statistics, and the establishment of rural hospitals will now all be directed by the Hon. George P. Smith, the Provincial Secretary. It is announced that more effective measures will be taken in future in regard to public health matters and one feels sure they will be productive of good results.

AN important announcement was made by the Honourable J. R. Boyle, Minister of Education in the province of Alberta, on the occasion of the annual conference of Provincial School Inspectors early in January. Mr. Boyle said that during the present term it was probable that a couple of doctors and nurses would be employed by the Department of Education to begin the medical inspection of children in rural schools. The most efficient method of conducting such an examination would have to be learnt from experience and the assistance of school inspectors was earnestly desired, both by practical advice and by arousing public interest in the work. The medical inspection of teachers was also included in the new departure contemplated by the Department of Education.

The success of the medical examination of children in the larger schools throughout the Dominion as a preventive measure against disease, has made any comment upon the advisability of medical inspection superfluous. Up to the present, however, it has not been found possible to extend the work to include schools in rural districts, although the matter is now under consideration in the province of Ontario; if, therefore, the plan spoken of by Mr. Boyle is put into effect during the present term, the credit of being the first of the provinces to inaugurate such a comprehensive system of medical school inspection will fall to Alberta.

THE Order-in-Council passed on November 15th, last, provides that the Food Controller may from time to time by written order prescribe the maximum amount of profit or the maximum price (or both) to be charged on the sale in Canada, or within any part of Canada designated by the Food Controller, of any food or foods or of any food product or food products designated by the Food Controller. In accordance with this, an order was issued by the Food Controller on December 27th, that from and after the first day

of January, 1918, and until further notice, milk distributors shall not charge more for milk sold by them than the actual cost of the milk delivered at their premises and, in addition to such cost, 5.25 cents per quart in the province of British Columbia, Alberta, Saskatchewan, and Manitoba, and five cents in the provinces of Ontario, Quebec, Nova Scotia, New Brunswick, and Prince Edward Island; that no retail dealer shall charge a higher price for milk than the price the milk distributors charge the consumers in the locality in which such retail dealer is carrying on business; and that if the cost of distribution is increased owing to an increase in the price of labour or otherwise, any distributor affected thereby, may submit evidence of such increase to the Food Controller and ask that the maximum amount herein prescribed for distributors in the province in which such distributor is selling may be increased.

As a means of increasing the food supply both for domestic consumption and for export to the Allies, farmers are earnestly requested by the Food Controller to increase the production of food animals and particularly of hogs. The tremendous importance of increasing the supply of food cannot be overestimated, and each farmer should look upon it as a national duty to increase his stock and to produce as much wheat as possible and thus "do his bit" by helping to feed our soldiers and those of our Allies.

THE Medical Department of Queen's University has an Osler Club which was organized some years ago for the study of the history of medicine, and for the establishment of an historical museum. About two hundred rare books and many surgical antiquities have already been collected. A lay friend, at the request of Sir William Osler, donated a copy of "Vesalius's Anatomy" (1555).

For this session the Club is trying the experiment of

debates and the following subjects either have been debated, or are on the tapis:

Resolved that the gonococcus is as great a menace to society as the spirochæte;

Resolved that the microscope saves more lives than the scalpel and the pill;

Resolved that the Canadian tuberculosis sanatoria, as at present conducted, have outlived their usefulness.

The Club meets monthly, in the evening. Three members of the faculty act as judges. Practically all the fifth year students attend and the membership is limited to that year.

At the debate on the first of the above-named subjects, one of the members of the affirmative waxed eloquent on the ravages of the gonococcus, showing among other things, the large proportion of the gynæcologist's time that was actually taken up in repairing, as far as was possible, the mischief done by this organism. At the conclusion of his somewhat dramatic address he said, "I submit, Gentlemen, I respectfully submit, that the name 'gynæcology' should be changed to 'gonocology.'"

THE question as to whether medical students should be called upon to join the combative forces has been settled by the following arrangement. First year students are liable for service if physically fit. With this exception, all students of medicine are exempted from combative service and are placed in a reserve corps to be called upon in case of military necessity. They will complete their medical training and upon graduation, if physically fit, will be given a commission in the Canadian Army Medical Corps. A similar arrangement has been made in regard to students of dentistry and veterinary science.

A BRANCH of the *Société de Chimie Industrielle* has re-

cently been founded in New York. This, it is thought, will lead to a closer coöperation between British, American, and French chemists not only during the war but also in the struggle for supremacy in the fields of synthetic medicine, dye production, and other branches of applied chemistry that inevitably will follow the declaration of peace.

THE following modifications in the course of medical instruction offered by the College of Physicians and Surgeons of Columbia University were suggested by the Dean of the College in his annual report, and will shortly be laid before the University Trustees: the addition of a fifth year to the regular medical course, the establishment of a diagnostic clinic where persons with moderate incomes may receive treatment at moderate rates, and the provision of additional systematic instruction for graduate students of medicine.

A study of deaths among industrial policy holders of the Metropolitan Life Insurance Company discloses the fact that the death rate from automobile accidents is now more than three times as great as it was in 1911, and that almost one third of the fatalities occur among children under ten years of age.

The Association

THE MEDICAL WEEK IN HAMILTON

WE are glad to be able to inform our members that Dr. H. Beaumont Small, of Ottawa, has accepted the Presidency of the Association for the coming year. After Dr. McKenty's resignation as president-elect, which was announced in our last issue, Dr. Small was selected to fill the vacancy by unanimous vote of the Executive Council, and we feel sure that this selection will receive the full approval of our members.

For upwards of twenty years treasurer of the Association, his close connexion with its administrative work renders him especially well fitted for the post of president. His executive ability is well known, he having served on many of the important committees of the Association. Personally there is perhaps no more popular member in our ranks; and we are certain that he will receive the hearty support of the Canadian profession in making the approaching Hamilton meeting, in spite of war times, the most successful on-record.

Dr. Small has already entered energetically upon the work of his office, and has promised us a communication on the subject of the meeting for our next issue.

In the meantime we are assured that local arrangements at Hamilton are progressing most satisfactorily.

The president of the Ontario Medical Association, Dr. John P. Morton, and his very able and energetic secretary, Dr. J. Heurner Mullin, with their committees, have already arranged many important details of the meeting.

We hope to be able to publish a preliminary programme in our next issue.

Miscellany

Correspondence

REPORTING OF ACCIDENTS FROM LOCAL ANÆSTHETICS

CHICAGO, *January 15th*, 1918

The Editor,

CANADIAN MEDICAL ASSOCIATION JOURNAL,

Sir,—

THE Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association has undertaken a study of the accidents following the clinical use of local anæsthetics, especially those following ordinary therapeutic doses. It is hoped that this study may lead to a better understanding of the cause of such accidents, and consequently to methods of avoiding them, or, at least, of treating them successfully when they occur.

It is becoming apparent that several of the local anæsthetics, if not all of those in general use, are prone to cause death or symptoms of severe poisoning in a small percentage of those cases in which the dose used has been hitherto considered quite safe.

The infrequent occurrence of these accidents and their production by relatively small doses point to a peculiar hyper-sensitiveness on the part of those in whom the accidents occur. The data necessary for a study of these accidents are at present wholly insufficient, especially since the symptoms described in most of the cases are quite different from those commonly observed in animals even after the administration of toxic, but not fatal, doses.

Such accidents are seldom reported in detail in the medical literature, partly because physicians and dentists fear that they may be held to blame should they report them, partly, perhaps, because they have failed to appreciate the importance of the matter from the standpoint of the protection of the public.

It is evident that a broader view should prevail, and that physicians should be informed regarding the conditions under

which such accidents occur in order that they might be avoided. It is also evident that the best protection against such unjust accusations, and the best means of preventing such accidents consist in the publication of careful detailed records when they have occurred, with the attending circumstances. These should be reported in the medical or dental journals when possible; but when, for any reason, this seems undesirable, a confidential report may be filed with Dr. R. A. Hatcher, 414 East Twenty-Sixth Street, New York City, who has been appointed by the committee to collect this information.

If desired, such reports will be considered strictly confidential so far as the name of the patient and that of the medical attendant are concerned and such information will be used solely as a means of studying the problem of toxicity of this class of agents, unless permission is given to use the name.

All available facts, both public and private, should be included in these reports, but the following data are especially to be desired in those cases in which more detailed reports cannot be made:

The age, sex, and general history of the patient should be given in as great detail as possible. The state of the nervous system appears to be of especial importance. The dosage employed should be stated as accurately as possible; also the concentration of the solution employed, the site of the injection (whether intramuscular, perineural or strictly subcutaneous), and whether applied to the mouth, nose, or other part of the body. The possibility of an injection having been made into a small vein during intramuscular injection or into the gums should be considered. In such case the action begins almost at once, that is, within a few seconds.

The previous condition of the heart and respiration should be reported if possible; and, of course, the effects of the drug on the heart and respiration, as well as the duration of the symptoms, should be recorded. If antidotes are employed, their nature and dosage should be stated, together with the character and time of appearance of the effects induced by the antidotes. It is important to state whether antidotes were administered orally, or by subcutaneous, intramuscular or intravenous injection, and the concentration in which such antidotes were used.

While such detailed information, together with any other available data, are desirable, it is not to be understood that the inability to supply such details should prevent the publication of reports of poisoning, however meagre the data, so long as accuracy is observed.

Miscellany

Correspondence

REPORTING OF ACCIDENTS FROM LOCAL ANÆSTHETICS

CHICAGO, *January 15th*, 1918

The Editor,

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While such detailed information, together with any other available data, are desirable, it is not to be understood that the inability to supply such details should prevent the publication of reports of poisoning, however meagre the data, so long as accuracy is observed.

The committee urges on all anæsthetists, surgeons, physicians, and dentists the making of such reports as a public duty; it asks that they read this appeal with especial attention to the character of observations desired.

Torald Sollmann, Chairman,

R. A. Hatcher, Special Referee,

Therapeutic Research Committee of the
Council on Pharmacy and Chemistry of
the American Medical Association.

Book Reviews

THE PRACTICAL MEDICINE SERIES. Volume III. The Eye, Ear, Nose and Throat. Edited by DR. C. A. WOOD, DR. A. H. ANDREWS and DR. G. E. SHAMBAUGH. Series 1917. Chicago: The Year Book Publishers. Price \$1.50.

This little book is not an exhaustive treatise of any of the subjects with which it deals, but is rather a series of brightly written articles, some excellently illustrated, on the eye, ear, nose and throat. There is much in these articles not to be found in more pretentious works.

The treatment of the physiology of the internal ear, especially that part based on the work of Barany, is well done; it takes up much that is left undone in text-books of physiology. The volume can be heartily recommended.

THE PRACTICAL MEDICINE SERIES. Volume IV. Gynæcology. Edited by E. C. DUDLEY, A.M., M.D. and S. S. SCHOCHET, M.D. Series 1917. Chicago: The Year Book Publishers. Price \$1.35.

This book justifies its place in a *practical* series; it is eminently deserving of that name. But it is a great deal more than merely the treatment of certain diseases peculiar to women; it enters into many considerations of a theoretical nature which necessarily underlie operative proceedings. It is a treatise to be widely read. The editorial notes are always valuable.

THE PRACTICAL MEDICINE SERIES. Volume V. Pædiatrics and Orthopædic Surgery. Series 1917. Chicago: The Year Book Publishers.

The portion on Pædiatrics has an excellent discussion on the subjects of the nutrition of children and on the common diseases to which infants and children are liable. The chapters on infant feeding are good and occupy the large part of the book which so vastly important a topic demands.

The surgical portion of the volume is a very practical treatment of a subject which has become, in a sense, a specialty—one more of the already large number of such.

Books Received

THE following books have been received and the courtesy of the publishers in sending them is duly acknowledged. Reviews will be made from time to time of books selected from those which have been received.

OBSTETRICS, NORMAL AND OPERATIVE. By GEORGE PEASLEE SHEARS, B.S., M.D., professor of obstetrics and attending obstetrician at the New York Polyclinic Medical School and Hospital; and E. E. SHEARS, M.D. Second revised edition. 734 pages with 419 illustrations. Price \$6.00. Publishers: J. B. Lippincott Company, Philadelphia, London and Montreal, 1917.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by H. R. M. LANDIS, M.D., Philadelphia, with the collaboration of CHAS. H. MAYO, M.D., and others. Volume III. Twenty-seventh series, 1917. Publishers: J. B. Lippincott Company, Philadelphia, London, and Montreal.

IMPOTENCE AND STERILITY, with aberrations of the sexual function and sex-gland implantation. By G. FRANK LYDSTON, M.D., D.C.L., formerly professor of the surgical diseases of the genito-urinary organs and syphilology in the medical department of the State University of Illinois. 311 pages. Published by The Riverton Press, Chicago, 1917.

GENITO-URINARY SURGERY AND VENEREAL DISEASES. By EDWARD MARTIN, A.M., M.D., F.A.C.S., professor of surgery University of Pennsylvania; and others. Tenth edition, 893 pages, illustrated with 422 engravings and 21 coloured plates. Price \$7.00. Publishers: J. B. Lippincott Company, Philadelphia, London and Montreal.

DISEASES OF WOMEN. By HARRY STURGEON CROSSEN M.D., F.A.C.S., associate in gynæcology, Washington University Medical School. Fourth edition, revised and enlarged, 1125 pages with 800 engravings. Price \$7.50. Publishers: C. V. Mosby Company, St. Louis, 1917.

LORD LISTER. By SIR RICKMAN JOHN GODLEE, Bt., K.C.V.O., M.S., F.R.C.S. 663 pages. Price 18/- net. Publishers: MacMillan & Co., Limited, London, New York and Toronto, 1917.

Obituary

FRANCIS WILLARD NAGLE, M.D.

It is with great grief that we record the sudden death of Dr. F. W. Nagle at his home in Montreal on January 24th.

Dr. Nagle was found in his garage asphyxiated by the fumes from his motor exhaust. All efforts at resuscitation failed, and he died later at the Royal Victoria Hospital.

The late Dr. Nagle was born at Ferguson Falls, Ontario, thirty-five years ago, and was educated at Almonte, Ontario, and at Ottawa University.

He entered the medical faculty of McGill University in 1904, and graduated with honours in 1908.

The late Dr. James Bell, chief surgeon of the Royal Victoria Hospital, recognizing Dr. Nagle's ability, appointed him house anæsthetist to the hospital. The excellent quality of his work amply justified his selection and in the following year he was made chief anæsthetist—a position he held until his death.

In addition he was soon appointed lecturer in Anæsthetics at the university—and anæsthetist to the Montreal Maternity Hos-

pital. Devoting himself entirely to this branch of medicine, he became a member of the American Association of Anæsthetists and was the President of this important body at the time of his death. This in short is the academic and professional record of the late Dr. Nagle; it gives, however, but a very inadequate estimate of the quality of his work.

From the first he inspired not only his colleagues, but also the patients with absolute confidence in his skill, adaptability, and resource. These gifts were intuitive—he was a born anæsthetist. This was perhaps especially conspicuous in his dealing with children.

As evidence of the efficiency of his work, we can say truthfully that in his hands post-anæsthetic complications were almost unknown. He was a past-master in the administration of nitrous oxide and oxygen as an anæsthetic—an unusual accomplishment even among experts.

As a man Dr. Nagle had a great personality. This was especially exemplified by his great influence, both with the public and with our profession. His sympathy, insight, and kindness of heart, endeared him to all. None appreciated these qualities more than those with whom he was daily associated. Dr. Nagle will be sorely missed not only by the hospital he served so faithfully, his colleagues who had come to rely so much upon his skill, but especially by the nurses who were so kindly helped in their early training in the operating room.

The JOURNAL extends its heartfelt sympathy to the bereaved family.

DR. WILLIAM JAMES SCOTT, who died at the Montreal General Hospital on November 25th, last, was a missionary in China for some years; he returned to Montreal a few years ago and went into practice at Notre Dame de Grace. Dr. Scott was thirty-six years of age and was the son of Rev. E. Scott, D.D., of Montreal, editor of the *Presbyterian Record*; he was a graduate of McGill University of the year 1905. He leaves a widow and two children.

DR. CHARLES PELLETIER died at Montreal on November 26th. Dr. Pelletier was on active service in France with the St. Cloud Hospital and recently returned to Montreal.

DR. FRANK L. SWITZER, who died of pleuro-pneumonia at the Protestant General Hospital, Ottawa, on December 22nd, last, was well known throughout the Ottawa Valley where he had

practised for many years. He was born at Switzerville, near Napanee, in the province of Ontario, in 1864. His early years were spent at Carleton Place, Ontario, where he attended the public schools. In 1882 he took the degree of B.A. at Victoria University and afterwards entered Queen's University as a student in medicine. His medical course was completed at Trinity Medical College in 1891, and in 1892 he began to practise at Riceville. For the past thirteen years he had lived in Ottawa.

DR. MURDO SUTHERLAND died suddenly at Westville, Nova Scotia, on December 24th, last, in the eighty-fifth year of his age. Dr. Sutherland was born at Six Mile Brook in the province of Nova Scotia and served his apprenticeship as a saddler. He decided, however, to take up the study of medicine and received his degree from Harvard Medical College in 1871. He first went into practice at Sydney but within a few months removed to Westville, where he has resided ever since. Dr. Sutherland built up a large town and country practice and was held in high esteem. Of recent years he had been unable to continue his professional work but had enjoyed fairly good health. He leaves one daughter.

DR. RICHARD JONES, of Cobourg, Ontario, died in December in the eighty-fourth year of his age. He was the son of a Methodist clergyman and was born in Clarke township in Ontario. He was educated at Albert College and graduated from the University of Buffalo in 1864, after which he took a post-graduate course in New York. Dr. Jones practised at Madoc, Port Perry, Toronto, and since 1901 at Cobourg. His widow and daughter survive him.

DR. STEPHEN BALLARD POLLARD died at Toronto on December 28th, at the age of seventy-two years. He was born at Port Credit in 1846 and graduated in 1869 from the Toronto School of Medicine. Dr. Pollard had lived in Toronto for over forty years and until a few years ago had a large practice there.

DR. WILLIAM DANIEL YOUNG, of Toronto, died on January 4th, in the forty-fourth year of his age, after a week's illness. He was born in Ottawa and was the son of Rev. Joseph Young. Dr. Young graduated in Arts from Toronto University in 1897 and in medicine in 1902. For the next few years he took charge of the Department of Chemistry at the Technical School, Toronto, and subsequently went into practice in the east end of Toronto. There

he worked indefatigably, largely among the poorer residents and soldiers' families by whom his loss will be keenly felt. He leaves a widow and four little daughters.

DR. N. SHACKNOVE, a Jewish physician and druggist in practice at Whitney Pier, Nova Scotia, was found dead in his office on the morning of December 20th. Dr. Shacknove went to Halifax to give assistance after the recent disaster and the dreadful scenes he witnessed there seem to have preyed upon his mind to such an extent that he determined to end his life. Dr. Shacknove was well liked by his patients and enjoyed a large practice. He was about forty years of age and leaves a widow and one child.

DR. GEORGE BAPTIE, of Ottawa, died on January 5th, in the seventy-fourth year of his age. He was born at Dunham, Ontario, and graduated from Trinity Medical College in 1875. Dr. Baptie practised in Ottawa and had been coroner there for some years. His failing health made it necessary for him to give up his professional duties a few months ago.

News

MARITIME PROVINCES

As the Rockhead Isolation Hospital at Halifax was so severely damaged at the time of the explosion as to be unfit for use, the Oxford School building has been converted into a hospital for infectious diseases. The Woegwoltic Club, formerly the sporting centre of Halifax, has also been converted into a hospital.

SMALLPOX is still prevalent in certain districts in the provinces of New Brunswick and Nova Scotia. At the end of December fifty-four cases were reported from New Brunswick and at Joggins Mines, near Amherst, Nova Scotia, thirty cases were reported at the beginning of January; a number of cases also occurred at Maccan in the same locality. The presence of smallpox in the counties of Kent, Northumberland and Restigouche in New Brunswick made it inadvisable for a time to call men to the colours from those counties. Up to January 21st, one hundred and forty cases had been reported from these counties.

DURING the year 1917 the contagious diseases reported in Fredericton, New Brunswick, were; diphtheria, thirty-four cases; scarlet fever, five cases; measles, twenty-eight cases, typhoid fever, twenty-five cases.

CONDITIONS in the hospitals in Halifax are gradually becoming more normal. The question, however, of providing separate accommodation for patients suffering from tuberculosis is at present exercising the authorities. No provision has been made by the city for the care of such patients, as tuberculous cases in the past have been sent to the Hazlewood Sanatorium.

DR. M. D. MORRISON, of Dominion, Nova Scotia, has been appointed chief medical officer of the Nova Scotia Workmen's Compensation Board, the appointment to date from the first of this month. Dr. Morrison has been colliery doctor at Dominion since 1897.

ONTARIO

THE following cases of communicable disease were reported in the province during the year 1917: measles, 7,795 cases, thirty-four deaths; diphtheria, 3,597 cases, 223 deaths; scarlet fever, 2,027 cases, thirty-eight deaths; whooping cough, 1,670 cases, fifty-four deaths; typhoid fever, 825 cases, eighty-three deaths; smallpox, 225 cases; infantile paralysis, 102 cases, eleven deaths; cerebro-spinal meningitis, 113 cases, sixty-six deaths.

During the month of December the cases reported were: measles, 667 cases, three deaths; whooping cough, 357 cases, six deaths; diphtheria, 369 cases, twenty-nine deaths; scarlet fever, 304 cases, six deaths; typhoid fever, 143 cases, eleven deaths; tuberculosis, 113 cases, seventy-six deaths; smallpox, sixty-five cases; infantile paralysis, two cases, one death; cerebro-spinal fever, seven cases, five deaths.

DR. CRAIG has given up his position as superintendent of the Byron Tuberculosis Sanitarium in order to join the Army Medical Corps.

DR. WOOD has been appointed surgeon to the Lindsay jail in succession to the late Dr. Jeffers.

DR. EDITH GORDON, of Toronto, has been appointed assistant medical advisor of women students in Cornell University.

DURING the past year the death rate in Toronto was 11·8 per thousand, estimating the population at the conservative figure of 475,000. The number of deaths in Toronto have steadily decreased as a result of the efforts of the Board of Health, and the mortality rate for 1917 is lower than that of any city on this continent in 1916 with the exception of Los Angeles, which was 11·3 per thousand of population; the figures for 1917 are not yet available. Cases of typhoid fever are also becoming less numerous and in 1917 there were only 95 reported as compared with 181 in 1916 and 154 in 1915; the death rate from this disease in 1917 was 3·8 per 100,000. The mortality rate in 1917 among infants of less than one year of age was 79·3 per 1000 births, as compared with 93·9 in 1916. One hundred and seventy-two children of less than two years of age died from diarrhoea and enteritis during the past twelve months.

AT the beginning of January it was reported that there were 107 cases of measles in London.

DR. W. S. DAKIN has been elected mayor of Kitchener.

A FIRE occurred in the east wing of the Water Street Roman Catholic Hospital at Ottawa on January 10th. At the time there were one hundred and sixty-three patients in the hospital, among them being twenty-one children. The patients were removed as quickly as possible to a place of safety but, unfortunately, four children, who were on the top floor of the building, and whose ages ranged from two to four years, lost their lives. A woman patient, who was safely removed from the burning building, afterwards died of shock. The main building of the hospital, which was built in 1884, escaped damage, the fire occurring in the east wing which was added in 1899.

DR. A. KNOX, of St. Mary's, has been elected president of the Perth County Medical Association.

DR. J. W. BRIEN, of Essex, has been appointed to the British Canadian recruiting depot at Detroit, Michigan.

QUEBEC

AN outbreak of typhoid fever has occurred at Hull in consequence of a breakdown of the chlorination plant early in December. Over a year ago the city was ordered by the Provincial Board of Health to instal a mechanical filtration plant for the treatment of the water supply; on the score of expense, however, the city council refused to do this and an action against the city, which is still pending, was brought before the superior court of the Province of Quebec. Upon the breakdown of the plant, the people were advised of the danger of an epidemic and were urged by the medical officer of health to boil all the water used for drinking purposes, but the advice in many cases was disregarded. It is estimated that there are over a hundred cases of typhoid fever now in the city and a number of deaths have already occurred.

MANITOBA

THE following cases of contagious disease were reported in Winnipeg last November: diphtheria, two hundred and four cases, four deaths; diphtheria carriers, sixty-four; typhoid fever, seven cases, four deaths; smallpox, eleven cases; whooping cough, fifteen cases; mumps, eleven cases; measles, one case; tuberculosis, twenty-nine cases, twelve deaths.

A SHORT course in public nursing was given to the nurses employed by the Provincial Board of Health in January. It was the first time a course of this nature had been given and the lectures were followed with the greatest interest.

SASKATCHEWAN

ANNOUNCEMENT has been made by Dr. M. M. Seymour, the public health commissioner for the province, that in future cases of venereal disease will be classed as "contagious" and must be reported to the Commissioner. The physician in attendance is required to report the case within three days without stating the name of the patient. Should the patient fail to return for treatment within thirty days, however, the name of the patient in question will be communicated by the physician to the Commissioner of Public Health.

THE following information was recently given by Dr. Seymour

in reference to infant mortality in the province of Saskatchewan. During 1916, exclusive of still-births, 1,470 deaths occurred among infants of less than one year of age, a death rate of 105·5 per 100,000 of population, or 76·3 per thousand births. In England and Wales during the year 1915 the infant mortality rate was 110 per thousand births, and in the United States, according to press reports, 124 per thousand births, both of which are considerably higher than the rate in Saskatchewan. The death rate was lowest in the rural districts where it was 89·09; in villages it was 126, in towns 150·7, and in cities, 228·5. During the year 1915, sixty-five deaths occurred in child-birth in the province, the rate per 100,000 being, rural districts 7·7, villages 13·5, towns 14, and cities 10·8.

WARNING the people of Saskatchewan against the danger of pneumonia during the winter months, arising largely through overheated rooms, Dr. Seymour states that in January, 1915, there were twenty-six deaths from this disease in the province, and in the same month of the following year fifty-one; in February, 1915, twenty-nine and in 1916, thirty-seven; in November, 1915, fifteen, and in 1917, nineteen; in December, 1915, thirty, and in 1916, thirty-seven.

DURING the month of November seventy-nine cases of contagious diseases were reported in Regina, comparing favourably with the same month in 1916, when 125 cases were reported. The number of cases of diphtheria, thirty-one, however, was greater last November than in November, 1916, when only thirteen were reported.

ALBERTA

AN Order-in-Council has been passed by the provincial government, which gives authority for the transference of the Board of Health from the Department of Agriculture, to that of the Provincial Secretary.

THE plans have been prepared for a military sanatorium which is to be built by the Military Hospitals Commission near Sarcee Camp. The institution, which will be built on the unit plan, when completed, will contain accommodation for seven hundred patients.

IN the recent general election Dr. Michael Clark, member for Red Deer, received a majority of over one thousand votes.

A RESOLUTION was passed in December by the Calgary Hospitals Board asking the city council at the next session of the legislature to request permission to increase the tax levied for hospital purposes. It was stated that the Board would close its financial year with a deficit amounting to fourteen thousand dollars.

DR. GERALDINE OAKLEY, of Toronto, has been appointed supervisor of medical inspection in the public schools of Calgary in succession to Dr. Leacock, who intends so devote herself to pathological work.

BRITISH COLUMBIA

THE following appointments have been made by the Provincial Government: Dr. D. B. Lazier, of Prince George, and Dr. G. B. Thompson, of Fernie, to be coroners; Dr. R. G. Stevenson, of Quatsino, to be medical health officer for Quatsino Sound District and medical inspector of schools at Quatsino and Port Alice. To be medical health officers: Invermere districts, Dr. P. Turner; Grand Forks, Dr. W. Truax; Phoenix district, Dr. D. L. Smith; Bella Bella district, Dr. G. E. Darby; Parksville district, Dr. H. E. Langlis; Lytton, Hope, Yale and surrounding districts, Dr. H. R. T. Fort.

THE annual convention of the North Pacific Surgical Association took place at Victoria in December, when a number of interesting papers were read, among them the following: "Perforated gastric ulcer," by Dr. A. O. Lee of Seattle; "Some of the benefits of gastric lavage with report of illustrative case of general peritonitis," by Dr. Park W. Willis of Seattle; "So-called neurasthenia from surgical standpoint," by Dr. W. H. Riggs of Vancouver; "Operative treatment of fractures," by Dr. Charles D. Hunter of Tacoma; "Bone transplants," by Dr. Milton G. Sturgis of Seattle. The next meeting of the Association will be in Seattle under the presidency of Milton G. Sturgis. The other officers elected for the present year were: first vice-president, Dr. E. F. Tucker, of Portland, Oregon; second vice-president, Dr. George Gordon, of Vancouver; secretary-treasurer, D. R. D. Forbes, of Seattle; councillor, Dr. A. Raymond, of Seattle.

ARMY MEDICAL SERVICES

THE list of appointments to the new Order of the British Empire, published on January 9th, contains the name of COLONEL R. D. RUDOLF, C.A.M.C., of Toronto, who has been gazetted Commander to the Order. Colonel Rudolf therefore enjoys the distinction of being the first Canadian medical man to be appointed to the Order of the British Empire.

THE Cross of the Legion of Honour has been awarded by the French Government to COLONEL GEORGE EMILE BEAUCHAMP, officer in command of the Laval University Hospital Unit.

THE Distinguished Service Order had been conferred upon CAPTAIN H. G. YOUNG, C.A.M.C., in recognition of his gallantry and devotion at the battle of Passchendaele.

THE Distinguished Service Order was conferred upon Captain Roderick Gordon, R.A.M.C., by the late General Maude on October 10th, the ceremony taking place on the battlefield near Remedai, Mesopotamia. Captain Bowman is a son of Professor J. H. Bowman of London, Ontario. He is a graduate of Western University and before joining the colours was in practice in South London.

THE bar to the Military Cross has been awarded to Captain Robert Harris, R.A.M.C., formerly of the C.A.M.C., who directed the evacuation of a heavily shelled dressing station crowded with patients.

THE Military Cross has been awarded to the following:

CAPTAIN GORDON M. JEPSON, C.A.M.C., of London, Ontario, for gallantry in action. Captain Jepson was attached to the staff of the Ontario Hospital at Orpington but, desirous of getting to France, joined a Field Ambulance and later No. 2 Stationery Hospital. About ten months ago Captain Jepson was appointed medical officer of the 24th Montreal Infantry Battalion.

CAPTAIN W. F. ABBOTT, C.A.M.C., of Winnipeg, for devotion to duty and for services rendered during the drive on Passchendaele Ridge. Captain Abbott is a gold medalist of the year 1916 of the Medical College of Manitoba University. He went overseas

in September, 1916, with the 100th Grenadiers and at present is attached to No. 9 Canadian Field Ambulance.

CAPTAIN JAMES F. MATHESON, R.A.M.C., of Owen Sound, Ontario, for conspicuous gallantry and devotion to duty.

CAPTAIN H. HEPBURN, R.A.M.C., who remained with his battery until its withdrawal, where his coolness, courage, and utter disregard for his personal safety greatly heartened all detachments.

CAPTAIN ARCHIBALD LAIRD, R.A.M.C., who attended the wounded for three days in a heavily shelled post and though slightly wounded in three places himself, carried on.

MAJOR HOWARD BROWN JEFFS, C.A.M.C., son of Dr. W. H. Jeffs, of Toronto. "For gallantry and devotion to duty. Although wounded himself, Major Jeffs tended the wounded under very heavy fire with great courage and determination. Later, being again wounded, he remained on duty until relieved."

MAJOR ARTHUR JONES.

CAPTAIN HERBERT C. ALLISON.

CAPTAIN ROBERT C. GARDINER.

CAPTAIN T. W. HERALD.

CAPTAIN HARRY W. WHYTOCK.

CAPTAIN JAMES MACGREGOR, R.A.M.C.

CAPTAIN CHARLES FENWICK, C.A.M.C., of St. John's, Newfoundland.

PROMOTIONS in the Canadian Army Medical Service: Assistant Director of Medical Services: Colonel J. A. Roberts, C. B. *vice* Lieutenant-Colonel J. McCombe.

To be Colonel: Temporary Lieutenant-Colonel J. M. Elder.

To be temporary Lieutenant-Colonel: Temporary Major A. C. Rankin.

To be temporary Major and retain the acting rank of Lieutenant-Colonel: Temporary Captain (acting Lieutenant-Colonel) A. Croll.

To be temporary Majors: Temporary Captains (acting Majors) J. J. Ower, R. J. McEwen, T. F. O'Hagan, M.C., R. H. Smith, S. G. Ross, M.C., R. H. M. Hardisty, M.C., H. Buck, M.C., G. W. Treleaven, M.C., H. E. Paul, J. W. Ross and A. H. Cameron-Smith, M.C.

To be temporary Majors: Temporary Captains F. S. Ruttan, J. M. Stewart, H. H. Burnham, H. B. Boyd, E. D. Hubbel, J. H. B. Bell, R. F. Flegg, J. L. Cock, G. O. Taylor, R. M. Luton, M.C., J. McW. Taylor, A. H. Taylor, M.C., W. Brown, M.C., D. Mc-

Lellan, J. W. Pilcher, N. G. Cooper, T. L. Butters, G. C. Hale, H. P. Wright.

To be acting Major while specially employed: Temporary Captain C. W. Waldron.

To be temporary Captains: W.E. Ainley, D. A. Warren, M.C., and temporary Lieutenant E. C. A. Crawford.

LIEUTENANT-COLONEL S. H. McKEE, C.M.G., who gave up a lucrative practice in Montreal and went to the front soon after the outbreak of the war, was recently promoted to the full rank of colonel. Colonel McKee is at present in command of the eye and ear hospital for soldiers at Folkestone, England. He took part in the Dardanelles campaign and also saw service on the western front, being created a Companion of the Order of St. Michael and St. George in recognition of his meritorious service. He is the eldest son of Mrs. S. H. McKee, of Fredericton, N.B.

THE Meritorious Service Medal has been awarded to SERGEANT-MAJOR M. DUFFEY, C.A.M.C.

THE Distinguished Service Medal has been awarded to SERGEANT J. WATSON, C.A.M.C.

THE Military Medal has been awarded to PRIVATE THOMAS TEBBUTT of the Canadian Army Medical Corps for conspicuous gallantry and devotion to duty under shell and machine gun fire. Though twice buried by shells he continued to carry the wounded to a place of safety.

THE Royal Red Cross of the Second Class has been awarded to Nursing Sister Alice Hogarth.

LIEUTENANT-COLONEL CHESTER MCGUFFIN, D.S.O., has been appointed Assistant Director of Medical Services. Lieutenant-Colonel McGuffin went overseas from Calgary with the Fourth Field Ambulance and was promoted to the command of the unit on the field. Major R. H. MacDonald, M.C., succeeds Lieutenant-Colonel McGuffin as officer in command of No. 4 Field Ambulance and has been promoted to be acting Lieutenant-Colonel.

LIEUTENANT-COLONEL JAMES WARBURTON, C.A.M.C., has been appointed to the command of the military convalescent

hospital which has been established at Government House, Summerside, Prince Edward Island.

COLONEL PERRY GOLDSMITH, C.A.M.C., of Toronto, has been appointed commandant of the new Officers' Convalescent Hospital at Matlock in Derbyshire, England.

MAJOR HART, C.A.M.C., of Winnipeg, has been appointed commanding officer of the sanatorium which has been established by the Canadian Medical Service at Maidstone in Kent, England

THE following members of the Canadian Army Medical Corps were mentioned in a dispatch dated October 25th, 1917, from Lieutenant-General G. F. Milne, Commander-in-Chief, British Salonica Force: LIEUTENANT-COLONEL G. GOW, MAJOR J. W. G. JOHNSON, CAPTAIN (acting Major) D. A. L. GRAHAM, and CAPTAINS W. A. CLARKE and A. B. SCHINBEIN.

Temporary Captains E. R. Edson and J. D. Maolean resign their commissions.

LIEUTENANT-COLONEL J. E. DAVEY, D.S.O., who recently returned from the front, has been appointed medical officer at Brant House Military Hospital, Toronto.

The following members of the Canadian Forces have been mentioned by Sir Douglas Haig, in recent despatches.

Staff: COLONEL A. E. ROSS, C.M.G., C.A.M.C.

LIEUTENANT-COLONELS (temporary Colonels) H. M. JACQUES, D.S.O., C.A.M.C., C. A. PETERS, C.A.M.C., R. P. WRIGHT, D.S.O., C.A.M.C.

Canadian Army Medical Corps:

LIEUTENANT-COLONELS R. J. BLANCHARD, J. E. DAVEY, C. H. DICKSON, J. A. GUNN, J. HAYES, T. J. F. MURPHY, F. W. E. WILSON.

MAJORS (temporary Lieutenant-Colonels) A. T. BAZIN, J. N. GUNN, T. McC. LEASK, C. H. REASON.

MAJORS (acting Lieutenant-Colonels) P. G. BELL, and J. J. FRASER.

MAJORS D. J. COCHRANE, G. S. MOTHERSILL and S. PAULIN.

CAPTAINS L. E. CLARK, W. J. E. MINGIE, G. W. ARMSTRONG,

G. S. CLANCY, G. M. DALE, G. A. McLARTY, H. S. MOORE,
H. S. SUGARS, C. W. TREHERNE and W. S. WALLACE.

LIEUTENANT W. McL. MOORE (Canadian Red Cross).

QUARTERMASTER AND HONORARY CAPTAIN J. E. TULLOCH.

CASUALTIES

Died on Service:

LIEUTENANT-COLONEL JOHN McCRAE, C.A.M.C., of Montreal.

CAPTAIN R. S. SMITH, C.A.M.C.

Wounded:

CAPTAIN JAMES F. MATHESON, C.A.M.C.

CAPTAIN W. J. E. MINGIE, C.A.M.C.

CAPTAIN W. K. TURNER, C.A.M.C.

THE Albert Medal has been awarded to acting Q.M.S. James William Brown, R.A.M.C., Sergeant William Seymour of the Northumberland Fusiliers, and Privates Arthur D. H. Allan and James Cuthbertson, R.A.M.C., for heroism in February, 1917, when a serious explosion occurred on the French troopship *St. Laurent* at Malta. In spite of the terrific heat and the danger of a further explosion Brown persuaded a Maltese policeman to row him out to the burning ship. The latter, however, refused to go within thirty yards of the ship and Brown was obliged to return. He was then joined by the others. They rowed to the ship and were able to save three lives.

Canadian Literature

ORIGINAL CONTRIBUTIONS

The Canada Lancet, December, 1917:

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| Blood pressure in its practical aspects . | J. Ferguson. |
| Dredging the canals of the abdominal nervous system by electricity to insure blood formation and pro- long life | Sir James Grant. |

Canadian Practitioner and Review, December, 1917:

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|-----------------------------------|---------------------|
| The Canadian Army Medical Service | J. T. Fotheringham. |
| Health Insurance | C. J. Hastings. |

> *The Public Health Journal*, December, 1917:

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|--|------------------|
| The contribution of health insurance to improvement of the public health | M. M. Dawson. |
| Health insurance, the practice of medi- cine and public health | T. M. Rubinow. |
| Detection and isolation of diplococcus intracellularis meningitidis | R. A. Defries. |
| The influence of mental defectives on the public health | Helen MacMurchy. |

The Western Medical News, October, 1917:

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| The present position of vaccine ther- apy | Professor Boyd. |
| Immunity | H. H. Mitchell. |

Le Bulletin Medical, December, 1917:

- | | |
|---|----------------|
| De l'électricité en thérapeutique | J. P. Fermont. |
| La radiothérapie du cancer de la peau | G. Ahern. |

Medical Societies

ELGIN COUNTY MEDICAL ASSOCIATION

THE annual meeting of the Elgin County Medical Association took place at St. Thomas, Ontario, on January 8th, under the presidency of Dr. G. A. Shannon. The reports of the various committees were submitted and the following officers elected for the current year: president, Dr. F. F. McEwen of Aylmer; first vice-president, Dr. D. Smith of Fingal; second vice-president, Dr. R. M. Lipsey of St. Thomas; third vice-president, Dr. D. J. Galbraith of Dutton; secretary-treasurer, Dr. W. F. Cornett of St. Thomas; executive committee, Dr. F. W. Smith of St. Thomas, Dr. A. Turner of Lawence, and Dr. G. McFarlane of Wallacetown.

It is the intention to hold a special meeting of the Association some time during the summer.

HALIFAX MEDICAL SOCIETY

THE society held its opening meeting on October 24th, 1917, at the Victoria General Hospital, Professor John Cameron in the chair. The meeting was entirely clinical. Dr. J. G. Macdougall showed a number of cases successfully operated on for various conditions of throat and thyroid disease. Professor A. G. Nicholls discussed the effects of partial thyroidectomy.

The second meeting was held on November 21st at the University, when Captain V. L. Miller, A.M.C., read a paper on "Treatment and sequelæ of gunshot injuries of bones".

The subjects were dealt with in a lucid and incisive manner; and the discussion which followed was full of interest.

THE KINGSTON AND FRONTENAC MEDICAL SOCIETY

THE regular monthly meeting was held in Queen's Military Hospital on December 10th, with vice-president Dr. Gibson in the chair.

Dr. H. A. Boyce showed a large number of roentgenograms of gunshot and shrapnel wounds. The series included injuries, in one form or the other, of almost every bone in the body.

A second series showed calculi—renal and ureteral; a third various stomach and duodenal conditions. A peculiar distortion of the duodenum had been diagnosed adhesions and this was verified at operation; the duodenum was adherent to a distended gall-bladder containing many calculi. The stomach plates showed varying degrees of "low stomach". It developed during the discussion that there is perhaps no standard normal roentgenologic stomach—that the shape of the stomach, and to some extent even its position, varies as the body-form of the individual; that many of these low stomachs occur in patients with a distinct enteroptotic habitus—poor musculature with a long, narrow trunk.

Dr. W. T. Connell presented the following case:

Private T., wounded at Vimy on April 30th, 1917, by shrapnel. A bullet entered the right occipital region just outside the midline and just above the superior occipital ridge. There was a comminuted fracture of the occipital bone, the right parietal and the frontal. The skull was trephined in the right parieto-occipital region, and a large piece of shrapnel removed. Hernia cerebri followed, but the wound healed in about three weeks, not, however, without considerable loss of brain tissue. Under the trephine opening there is now a large depression measuring two and one-half inches from behind forward, two inches from above down, and two and one-quarter inches in depth. The wound is healed. The wound in the right occipital region is filled in with bone. The depression over the right parieto-occipital lies two inches in front of the superior occipital line, and its upper border extends to within three quarters of an inch of the mid-line. This depression would cover most of the area of the supra-marginal and angular gyri and a portion of the post-central gyrus. The man shows partial loss of power on the left side, but no actual paralysis. He has lost completely coördination of this side, the movements being governed entirely by the sense of sight. He finds it quite impossible to move about in the dark. Epicritic sensation is lost over the entire left side and protopathic much diminished. His muscle sense is markedly blunted. He has an homonymous hemianopsia. Both pupils react sluggishly. Reflexes on left side are diminished, the patellar being practically lost. The man has no visual aphasia, no agaphia, no word-blindness. He is right-handed.

Dr. Connell also gave a preliminary report on the functional nephritic tests as carried out on returned soldiers with trench nephritis. These tests showed that practically all such cases, who have not had any previous kidney disease, responded similarly to

normal individuals, even though small amounts of albumin and occasional casts are still present.

Dr. Day reported, subsequently, that his case of congenital obliteration of gall-bladder and common duct had died of peritonitis at the age of eleven months and nineteen days. So far as he was able to learn from the literature his patient had lived about two months longer than any previously reported case.

MONTREAL MEDICO-CHIRURGICAL SOCIETY

THE first regular meeting for the session 1917-18 was held Friday October 5th, 1917, and took the form of a smoker. The retiring president's address was read and the new officers installed.

THE second regular meeting of the society was held Friday, October 19th, 1917, Dr. A. E. Garrow, president, in the chair.

CASE REPORT: Development of hæmorrhagic disease following injury to the liver, by Dr. E. M. von Eberts. (The report of this case appears on page 139 of this number of the JOURNAL.)

Dr. W. J. Scott exhibited the specimens from this case.

DISCUSSION: Dr. C. K. P. Henry: I had the opportunity of performing the three transfusions in this case. The first was undertaken during the absence of Dr. von Eberts and when the patient was considered to be suffering from a bleeding duodenal ulcer; the transfusion was limited to 275 c.c. of blood. Preliminary tests were carried out and the patient and donor were found to be in Group 2. No reaction occurred after this transfusion. Hæmorrhage again recurred on September 29th. The pulse was 140-156 and transfusion was performed, 400 c.c. being taken from the brother-in-law, who was also in Group 2. After this second transfusion there developed what was to me a new symptom in transfusion work, a very prompt anaphylaxis, with œdema of the eyelids, lips, etc., even before the second tubeful was introduced into the patient. It was found that this reaction was due to the fact that she had had an injection of horse serum previously. We gave her adrenalin and there was no further increase in the amount of the œdema. The blood count improved following this second transfusion, the colour was better, the pulse was 120, the temperature less, and she felt and looked better. The following day the

œdema of the eyelids had almost disappeared. The third transfusion was done on October 4th, about the same quantity, and in this case I had a little trouble with one Kimpton tube and had to decant it into the one that had been used. In one of these transfusions I had twice filled the same tube without any sign of clotting. In the literature are noted several cases of anaphylaxis, in two when horse serum had been given intravenously before the transfusion.

Dr. W. F. Hamilton: I would like to know if any skin eruptions developed in this case; did the bruises show any increase of discolouration, or did any purpuric spots appear?

Dr. E. W. Archibald: I gather at one point of Dr. von Eberts' paper that in the history it was stated that the patient had had tarry stools before this injury. Is it possible she had a hæmorrhagic diathesis before the injury occurred and could that not be why the bleeding persisted from the liver until her death?

Dr. A. E. Garrow: With this large rent in the intrahepatic duct was there much evidence of bile in the peritoneal cavity?

Dr. F. R. England: As a practical surgeon I should say that this person seemed to have received very severe injury and in the absence of explanations given us so lucidly one might conclude that the severity of her injury together with her pregnant condition might easily account for her death.

Dr. E. M. von Eberts: Replying to the various questions:

1. The areas of ecchymosis, noted on the day of injury, showed no increase. At autopsy, performed two and a half hours after death, there was pronounced post mortem lividity, showing that the blood was in a very fluid state.

2. An indefinite history of tarry stools was obtained from the patient's mother, but was very unreliable. The patient had never vomited blood. Excessive bleeding had not occurred following dental extractions, nor had excessive bleeding been noticed following cuts or scratches. There was no family history of hæmorrhagic diathesis. Finally, at autopsy the intestinal tract was free from any evidence of chronic or recent lesions of any description.

3. The only fluid found in the peritoneal cavity at the time of operation was thin liquid blood. The area of laceration was walled off by adhesions between the liver and the diaphragm and the abdominal parietes. There was no evidence of injury to the diaphragm.

4. It is contrary to one's experience to meet with repeated

secondary hæmorrhages from a liver lacerated by injury or wounded accidentally at operation. In the absence of hæmorrhagic tendency the normal phenomenon of coagulation is noted. As death occurred six weeks after the original injury, it is impossible to attribute death to the laceration *per se*, as, under other conditions, such a laceration would have undergone complete repair. It has been already stated that at autopsy careful search failed to reveal in the area of laceration any divided blood vessels of large calibre.

PAPER: The paper of the evening was an address by Professor Arthur Willey, head of the Zoological Department of McGill University, who took as his theme, "The Foundation of Behaviour." Specimens of lizard and snake were exhibited.

THE third regular meeting of the society was held Friday, November 2nd, 1917, Dr. A. E. Garrow, president in the chair.

CASE REPORT: Intestinal hæmorrhage in the new-born, with recovery. Two cases were reported by Dr. D. N. Richards, which will be published in a later issue.

LIVING CASE: Intestinal hæmorrhage in the new-born, by Dr. D. J. Evans.

The case which I bring before you is similar to that reported by Dr. Richards. The mother was a primipara, aged twenty-eight, admitted to hospital on October 15th with the membranes ruptured artificially an hour or two before coming in. There had been some labour pains for a short time but they had disappeared and did not begin until two days later. Pains began in the afternoon and lasted all night; at 7 p.m. meconium was seen in the discharge but the foetal heart remained good. During the night the patient rested under morphia and hyoscine and in the morning the pains recurred, becoming stronger in the afternoon. There was delay in the perineum so that the child had to be lifted out by a low forceps operation. It was somewhat asphyxiated and had to be resuscitated. The amniotic fluid was yellowish-green and had a slightly foul odour. The infant was a female weighing 3,160 grammes and was 51 cm. long. There was a general icteroid tinge of the skin at birth. The mother's history showed temperature throughout perfectly normal, although there was a foul odour from the lochia. The history of the child was uninteresting for the first few days; it nursed well, but on the sixth day there was a vaginal

discharge of blood and mucus. On the seventh day a foul odour to the dark greenish bowel movements was noted and on the eighth day the motion was black with a very foul odour. At 3 p.m. that day another black stool was passed, large, and containing a quantity of blood. This was associated with evident collapse of the child, and 5 c.c. of the mother's blood was now injected into the buttock. Next day the stool again contained blood and the child's condition was very poor. In the afternoon a second dose of 10 c.c. was given into the buttock and from that time improvement continued so that on the twelfth day, three days after the second injection, the motions were yellow and the child was allowed to nurse. There was no fever, the highest temperature was 99.8° . On the thirteenth day the cord detached without hæmorrhage and the child's general condition showed rapid improvement. It is now fourteen days old and I present it to-night to show how little, if any, evidence there is of its critical struggle for existence a few days ago.

Many different forms of treatment have been used in these cases but mostly unsuccessful. Direct transfusion has been extraordinary in its success, even in cases of very extensive hæmorrhage. As a rule excellent results are obtained from injection of the mother's blood by preference, but any adult human blood is equally efficacious if injected muscularly. Another point that has been brought out is the use of blood serum, and for this purpose horse serum has been used successfully by a considerable number of people. Dr. C. J. Covernton, of Vancouver, had a very successful result from the use of diphtheria antitoxin, used simply for the serum; he had two cases which made a rapid recovery.

DISCUSSION: Dr. Grant Stewart: I saw the case reported and it is doing very well and I think Dr. Richards is to be congratulated on the way he handled these cases. Last spring I had another case with hæmorrhage of the umbilical cord which I treated with calcium lactate. The child was a Hebrew and circumcision was delayed for a short time, but no trouble resulted at the operation when performed later. These hæmorrhages usually occur before the twelfth day, evidently some change takes place after that for they do not recur, as in my case where circumcision was performed later and no trouble resulted.

Dr. Brown: I would like to know if in these cases there was any lesion from the cord after it was first tied, suggesting absorption of the absolute alcohol as a possible cause of inducing the lack of coagulability of the blood.

Dr. G. A. Berwick: Recovery in these cases of hæmorrhage is not at all frequent. In a recent case where the hæmorrhage came on two or three days after birth I used blood serum from the father; it checked the hæmorrhage but the child did not recover.

Dr. D. F. Gurd: I might mention two cases of hæmorrhage in the new-born that took place almost immediately after birth. The first was a very large hæmorrhage, a forceps case; there was bleeding from the umbilicus and from the little wound at the side of the face. It had an enormous hæmatoma from which it died. Another in the same family, with two healthy children between, bled almost immediately after birth. There was no surgical interference, the bleeding was from the cord and from the bowel, and it died in two days. When the first child died I went into the history carefully and found a strong hæmophylic family dyscrasia on the father's side two generations back.

A few years ago a series of these cases was reported by a lady doctor, from Toronto I think; she treated them all with gelatin by mouth and they recovered.

Dr. Richards: About the alcohol, our technique for dressing cords is to pour a little 95 per cent. alcohol on a swab and squeeze it dry before applying to the cord. In these two cases there was no tendency to bleeding from the cord and as we use the alcohol as a routine in all our cases any untoward results would have been noted.

CASE REPORT: Anthrax of face, by Dr. C. K. P. Henry. The report of this case appears on page 142 of this number of the JOURNAL.

DISCUSSION: Dr. Lauterman: This case interests me very much as I was one of the first to see the patient. He had been attended by another medical man who had to leave town and he came in to see me saying that he had had a bottle containing lead lotion and asking for a prescription to get more. The lesion looked to me to be the most innocent looking boil I ever saw and he complained of nothing whatever. On the second or third day after I had seen him his wife telephoned and asked me to see him as he seemed ill. I could not go at the time but sent a colleague who immediately sent him into hospital. I saw him within twenty-four hours after the onset of his illness and he then had no temperature nor malaise and the pain was trifling. The ultimate ending of course was very disappointing and I confess that the possibility

of anthrax never occurred to me. I have seen several cases in Europe but never one in Montreal.

Dr. W. S. Morrow reported a case he had seen in Germany eighteen years ago where the focus of infection was under the right eyelid. The man's occupation was that of handling hides.

Dr. A. E. Garrow: I would like to ask if there was any possible explanation of the source of infection in this particular case.

Dr. C. K. P. Henry: The man worked in an ammunition plant and Dr. H. R. D. Gray personally inspected every man there, and found nothing on any of the men to suggest a similar lesion. The only other source then was the horse which the man himself kept and which had a small sore which he had been attending, but the city inspector whom we called in to see the horse found nothing whatever in various cultures and tests and the animal was perfectly well a couple of days after the man's death.

PATHOLOGICAL SPECIMENS: Series by Dr. H. Oertel.

1. This is a specimen of an appendix removed by Dr. Garrow. It is very typical. The appendix is tremendously enlarged, sausage-shaped, and filled with mucoid gelatinous material. Its general form is well preserved, the mucous membrane stretched, partly thinned and partly irregularly thickened, and its opening near the insertion into the cæcum extremely narrow, practically obliterated. These extreme cases are not very frequent, and when they do arise they are apt to give diagnostic difficulties. There are two theories as to their origin, one is that it is an essentially inflammatory condition and the other is that it is a developmental anomaly. Of these the inflammatory origin is more generally believed.

2. This second specimen is also typical; a syphilitic aortitis from a patient in the care of Dr. Hamilton, who died with anginal attacks. Although there was no Wassermann reaction in the blood, the lesion is anatomically quite typical. The origin of the aorta is characteristically scarred, puckered, and retracted. The left coronary artery is practically entirely obliterated, the opening extremely narrow as a result of surrounding cicatricial contraction. The origin of the right coronary artery is also somewhat narrow but the artery itself is fairly well preserved.

3. Cancer of the prostate with metastases in bones and dura mater of brain. This patient was a man of fifty who had been ill with an obscure chronic disease, clinically extremely difficult to diagnose. He complained first of severe intercostal pains and

pains in the neck, to this was later added a paretic condition of his legs. Ultimately ill defined mental symptoms appeared. The diagnosis was a probable cord tumour. At autopsy the dura mater of the brain displayed what appeared to be at the time, a well marked pachymeningitis hæmorrhagica chronica dextra. Further examination disclosed a disseminated and uniform nodular soft tumour growth of all the ribs of the thorax, also of the clavicle and of several vertebræ. On account of their uniformity and the general dissemination I was inclined to regard the growth at autopsy as multiple myelomata. However, due to the diligence of Dr. Gross, who performed the autopsy, we were able to go further. If one looks at this prostate one is not inclined to regard it as diseased, it is not enlarged or nodular, and during life also nothing had attracted attention to it. But if one examines it carefully, in gross sections small yellowish patches will be seen, which, as soon as we saw them, raised the question of cancer of the prostate with bone metastases. This was borne out by microscopical examination and it is remarkable to see how advanced the growth is in this prostate, which, but for close examination, would have escaped notice. Very interesting also is the fact that metastases in the dura mater were found in the areas which were the seat of pachymeningitis hæmorrhagica. Metastases from cancer of the prostate in the bone is generally recognized, but metastases in the meninges is rare.

The case was illustrated by microscopic slides from the organs.

PAPER: The paper of the evening was read by Dr. E. W. Archibald on "The surgical treatment of intestinal tuberculosis".

It was discussed by Dr. A. E. Garrow and Dr. A. H. MacCordick, and Dr. Archibald replied.

Medical Societies

CANADIAN MEDICAL ASSOCIATION:—President—Dr. A. D. Blackader, Montreal. President-elect—Dr. H. B. Small, Ottawa. Acting Secretary treasurer—Dr. J. W. Scane, 836 University Street, Montreal.

ACADEMY OF MEDICINE, TORONTO:—President—Dr. D. J. Gibb Wishart. Secretary—Dr. J. H. Elliot, 11 Spadina Road. Treasurer—Dr. J. H. McConnell.

ALBERTA MEDICAL ASSOCIATION:—President—Dr. D. G. Revell, University of Alberta, Edmonton South. Secretary-treasurer—Dr. T. H. Whitelaw, Medical Officer of Health, Edmonton.

Annual Meeting, Edmonton, 1918.

ASSOCIATION OF MEDICAL OFFICERS OF THE MILITIA:—President—Lt.-Colonel A. T. Shillington, A.M.C., Ottawa. Secretary—Captain T. H. Leggett, A.M.C., Ottawa.

ASSOCIATION OF MEDICAL OFFICERS OF NOVA SCOTIA:—President—Dr. George E. DeWitt, Wolfville. Secretary—Dr. W. W. Hattie, Halifax.

BRANT COUNTY MEDICAL SOCIETY:—President—Dr. E. R. Secord, Brantford. Secretary—Dr. M. N. Faris.

BRITISH COLUMBIA MEDICAL ASSOCIATION:—President—Dr. J. Glen Campbell, Vancouver. Secretary—Dr. H. W. Riggs, Vancouver.

CALGARY MEDICAL ASSOCIATION:—President—Dr. H. A. Gibson. Secretary—Dr. J. W. Richardson. Treasurer—Dr. J. V. Follett.

CANADIAN ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS:—President—Dr. J. A. Machado, Ottawa. Secretary—Dr. George D. Porter, Ottawa.

CANADIAN HOSPITAL ASSOCIATION:—President—Dr. H. A. Boyce, Belleville. Secretary—Dr. J. M. E. Brown, Toronto.

CANADIAN PUBLIC HEALTH ASSOCIATION:—President—Dr. J. W. Hattie, Halifax, Nova Scotia. Secretary—Dr. J. G. Fitzgerald, University of Toronto. Annual Meeting, Hamilton, May, 1918.

CENTRAL SOUTHERN ALBERTA MEDICAL SOCIETY:—President—Dr. J. S. Murray, Okotoks. Secretary-treasurer—Dr. G. E. Learmonth, High River.

COLCHESTER-HANTS MEDICAL SOCIETY:—President—Dr. J. W. T. Patton, Truro. Secretary—Dr. H. V. Kent, Truro.

DUFFERIN MEDICAL SOCIETY:—President—Dr. Rooney, Orangeville. Secretary—Dr. Smith, Shelburne.

EDMONTON ACADEMY OF MEDICINE:—President—Dr. C. U. Holmes. Secretary-treasurer—Dr. E. L. Garner. Library, 12 Credit Foncier Building.

ELGIN COUNTY MEDICAL ASSOCIATION:—President—Dr. F. F. McEwen, Aylmer. Secretary-treasurer—Dr. W. F. Cornett, St. Thomas.

FRASER VALLEY MEDICAL SOCIETY:—President—Dr. DeWolfe Smith. Secretary—Dr. D. F. Carswell.

HALDIMAND COUNTY MEDICAL ASSOCIATION:—President—Dr. Hopkins, Dunnville. Secretary—Dr. Courley, Cayuga, Ont.

